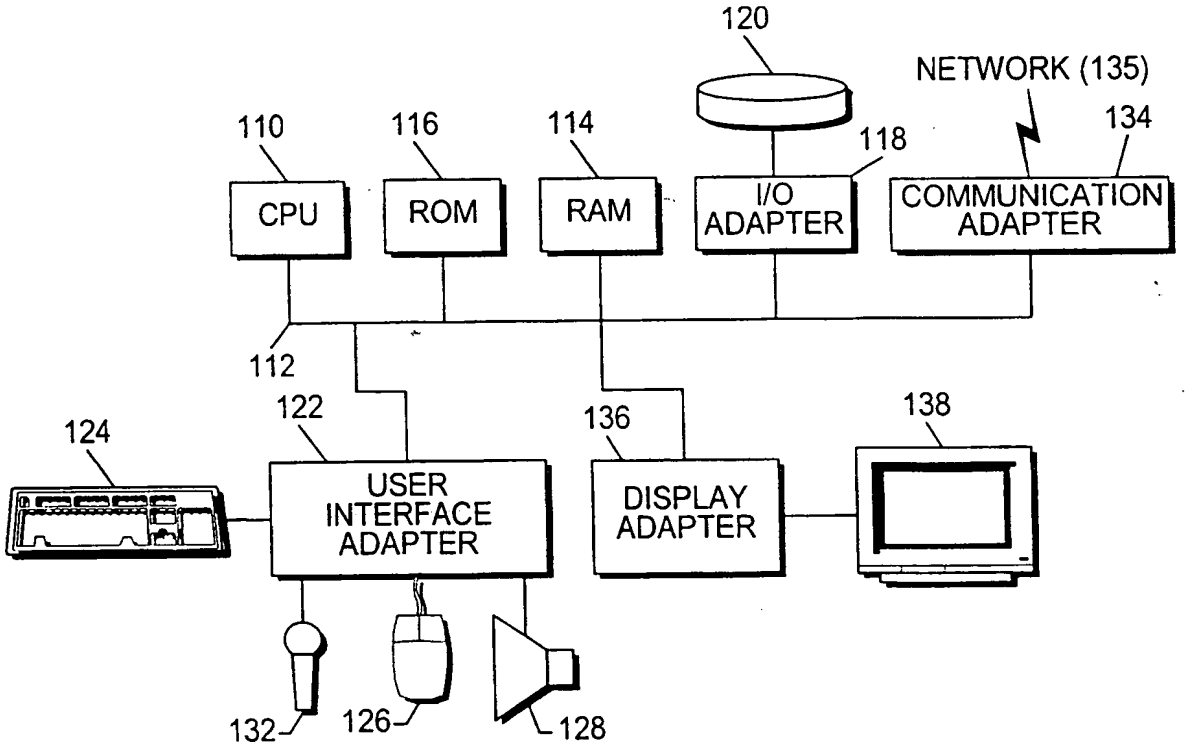
120
NETWORK (135)
110
116
114
118
134
CPU
ROM
RAM
I/O ADAPTER
COMMUNICATION ADAPTER
112
122
136
138
124
USER INTERFACE ADAPTER
DISPLAY ADAPTER
132
126
128

FIGURE 1

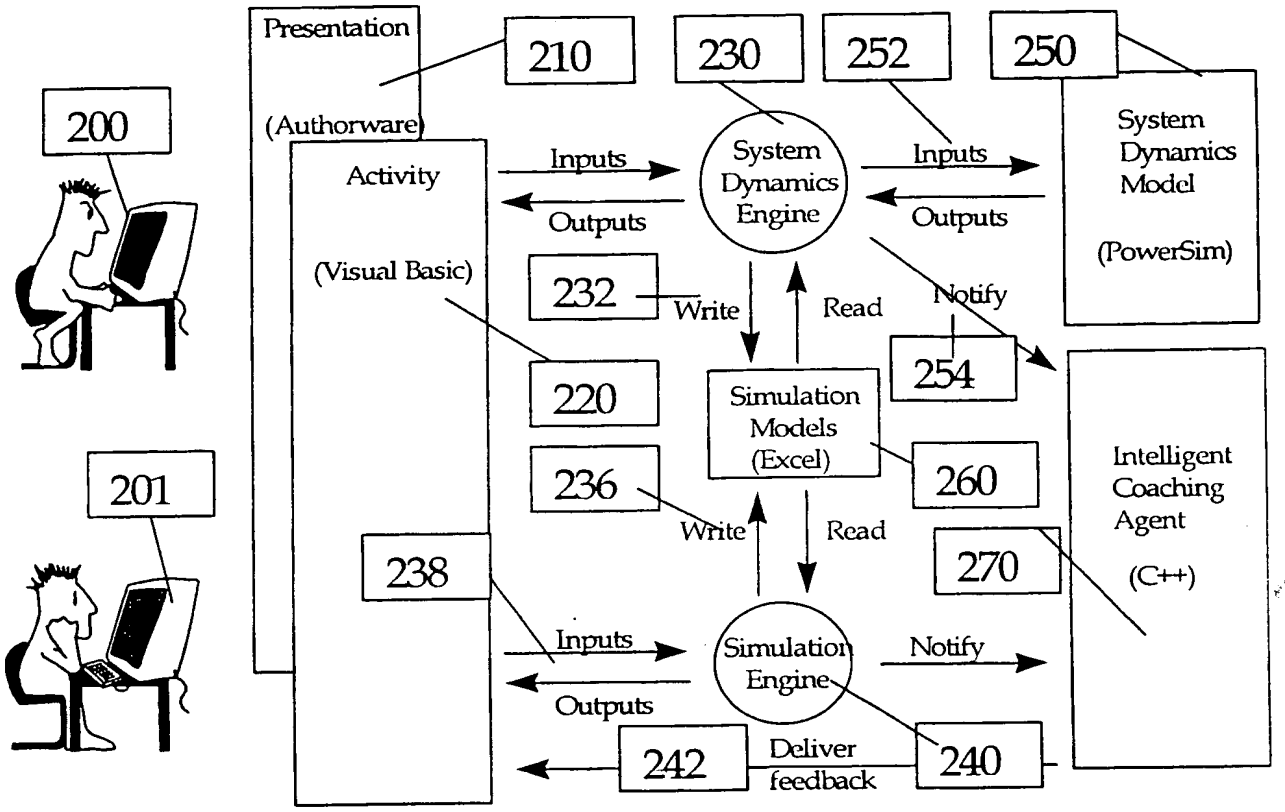
200
201
Presentation
(Authorware)
Activity
(Visual Basic)
210
230
252
250
System Dynamics Engine
System Dynamics Model
(PowerSim)
Inputs
Outputs
Inputs
Outputs
232
Write
Read
Notify
254
220
Simulation Models (Excel)
260
236
Write
Read
238
270
Intelligent Coaching Agent
(C++)
Inputs
Outputs
Simulation Engine
Notify
242
Deliver feedback
240

FIGURE 2

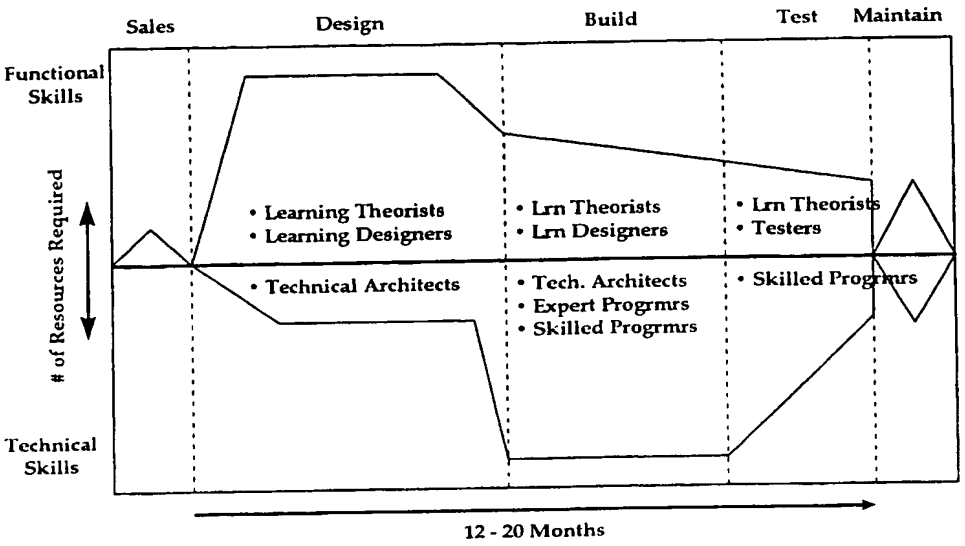

FIGURE 3

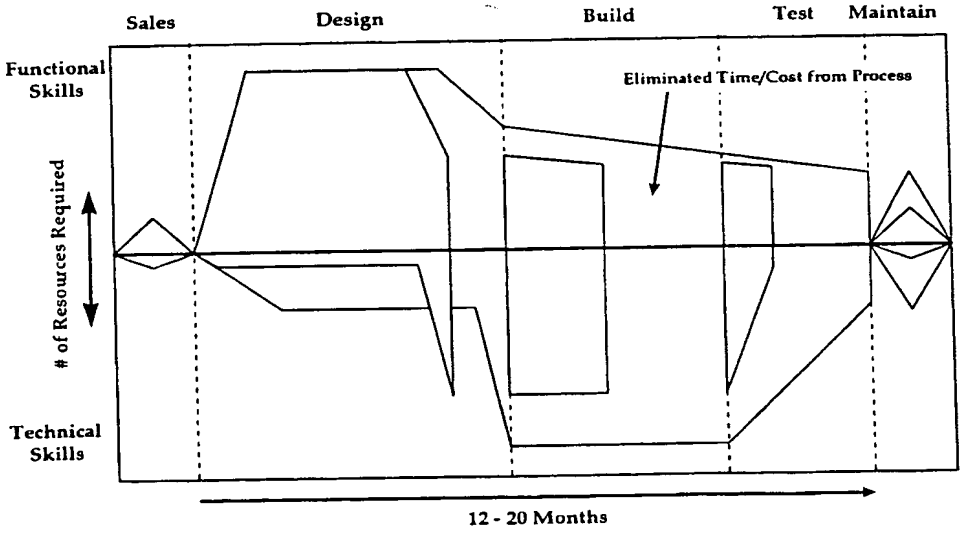

FIGURE 4

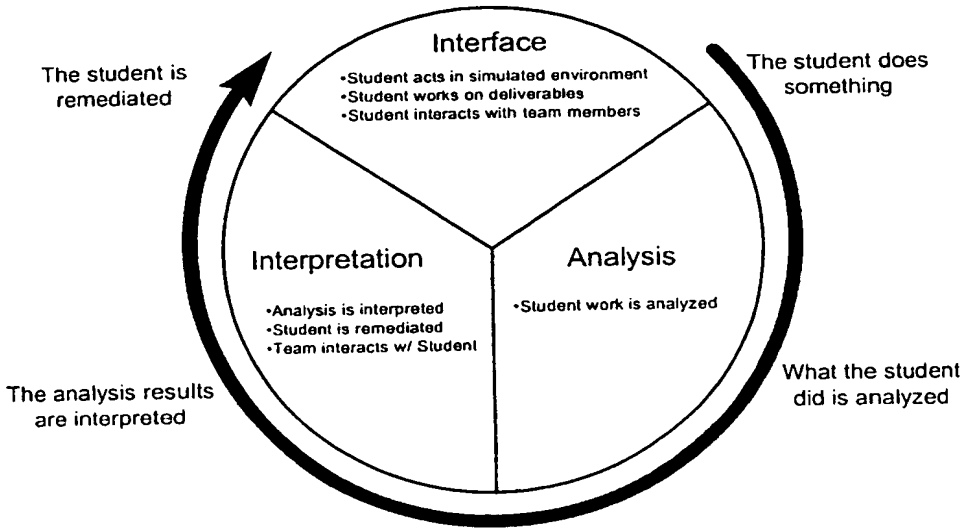

FIGURE 5

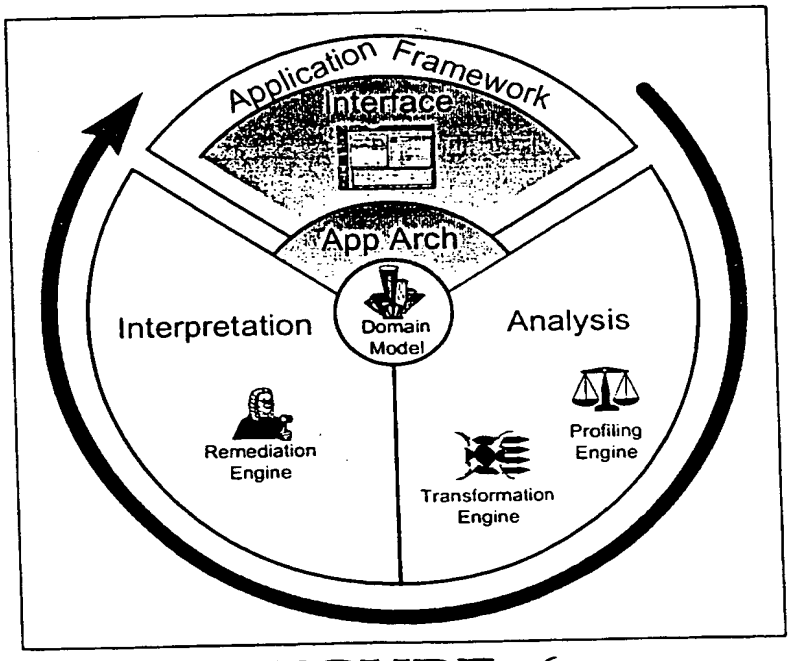

FIGURE 6

10/009577

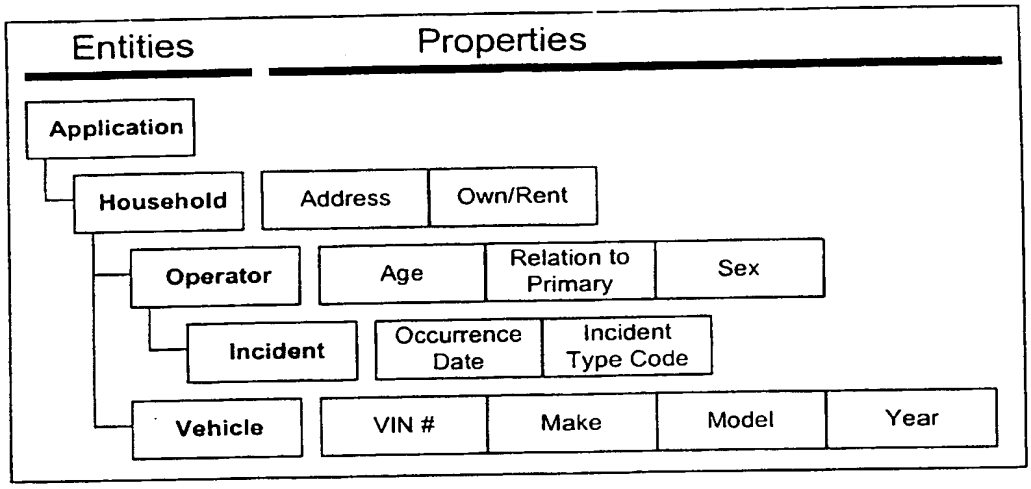

FIGURE 7

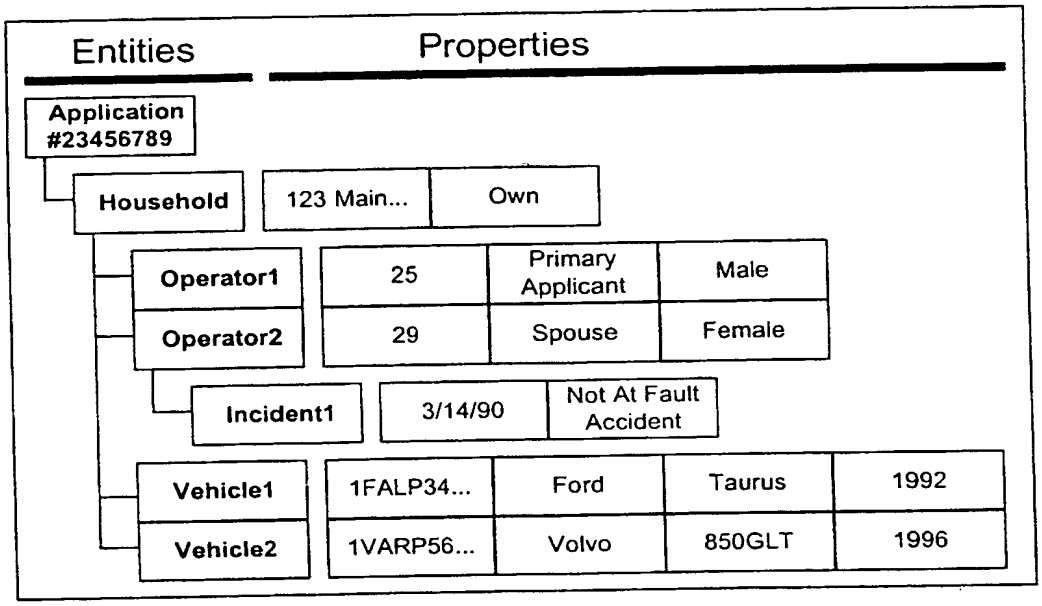

FIGURE 8

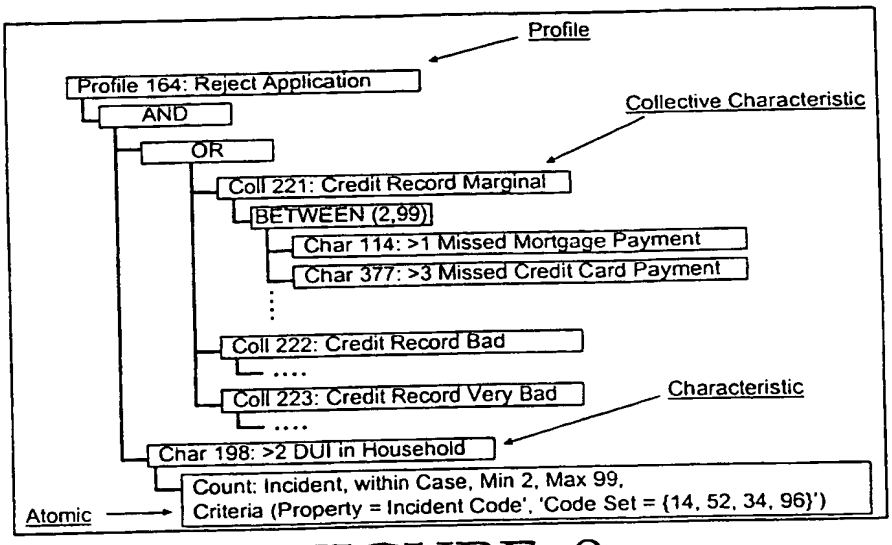

FIGURE 9

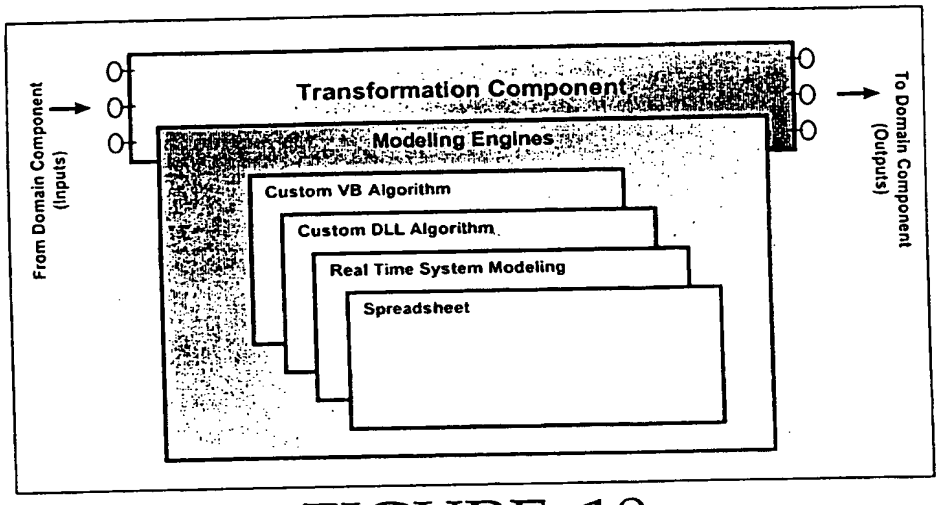

FIGURE 10

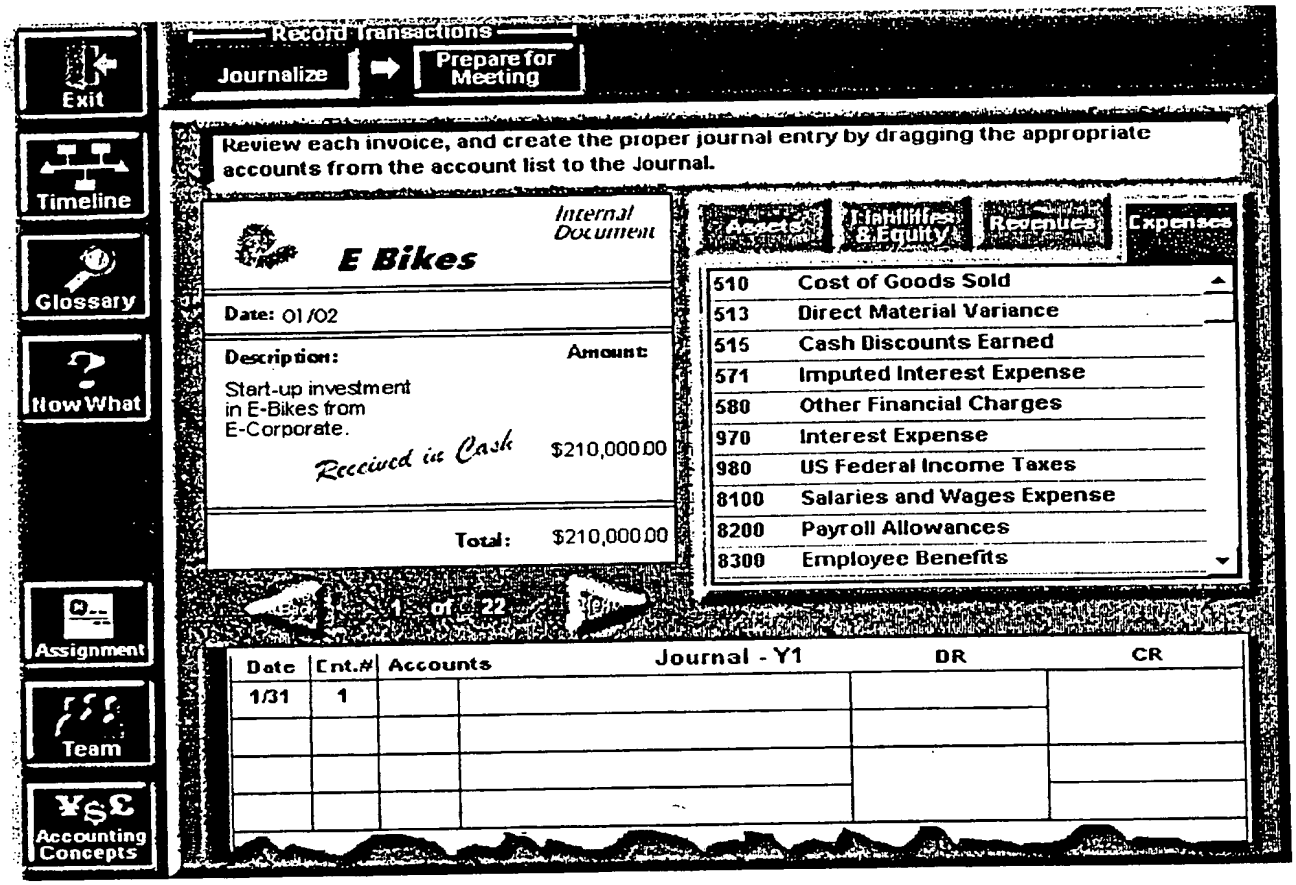

FIGURE 11

7/74

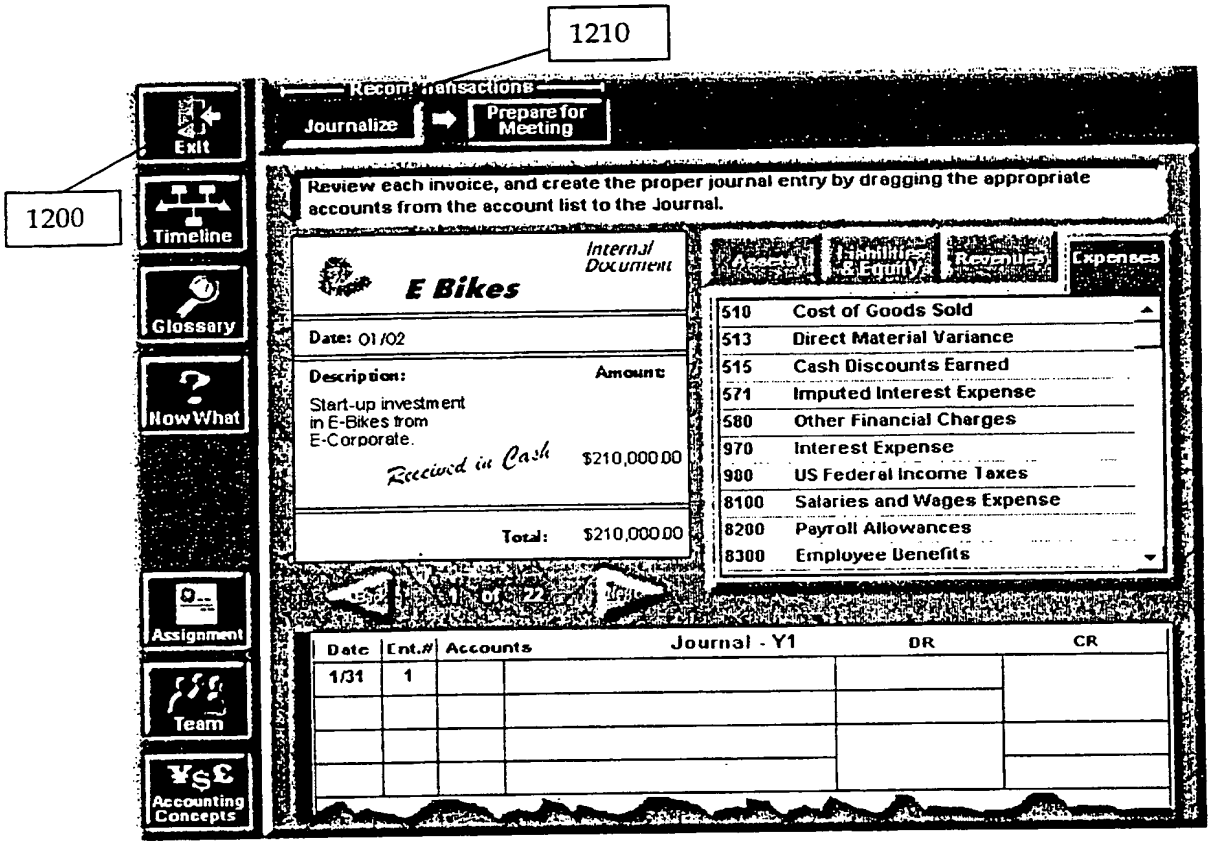

Figure 12

8/74

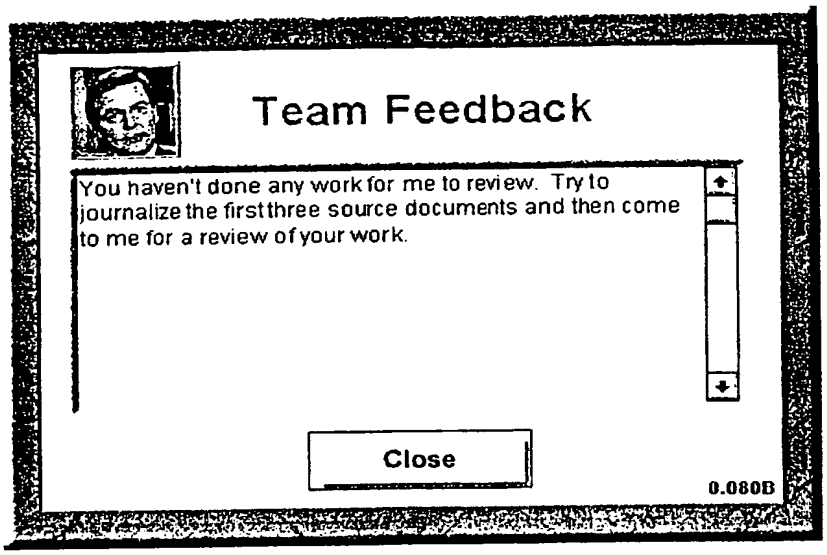
Team Feedback
You haven't done any work for me to review. Try to journalize the first three source documents and then come to me for a review of your work.
Close
0.080B

Figure 13

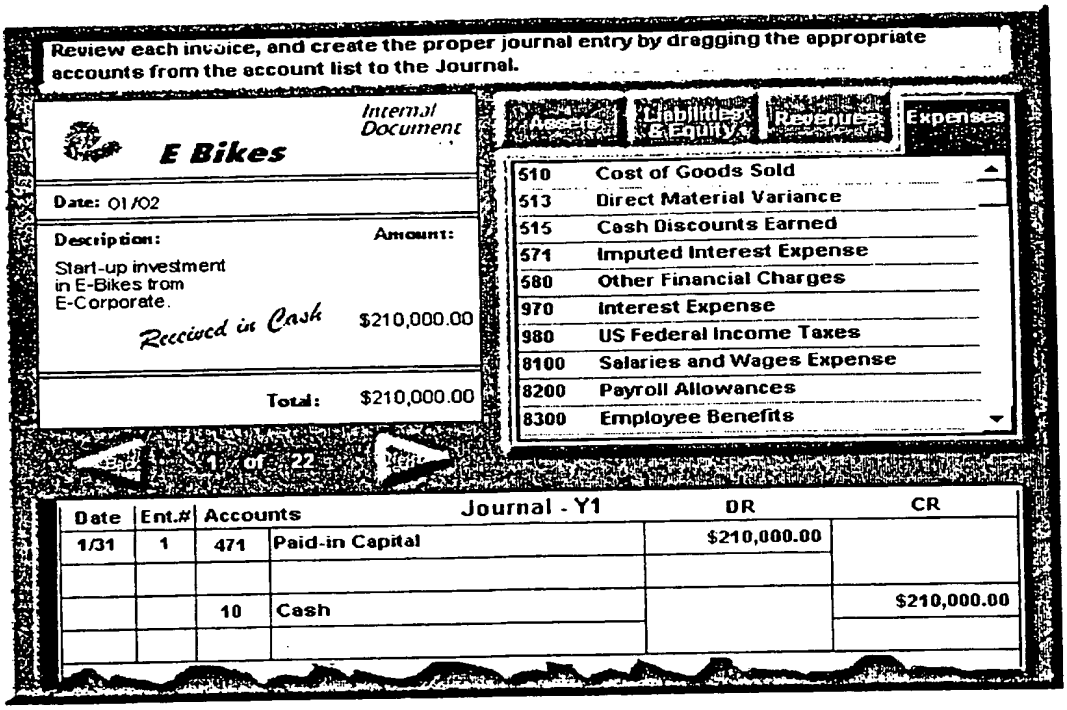
Review each invoice, and create the proper journal entry by dragging the appropriate accounts from the account list to the Journal.
E Bikes
Internal Document
Date: 01/02
Description:
Amount:
Start-up investment in E-Bikes from E-Corporate.
Received in Cash
$210,000.00
Total:
$210,000.00
Assets
Liabilities & Equity
Revenues
Expenses
510 Cost of Goods Sold
513 Direct Material Variance
515 Cash Discounts Earned
571 Imputed Interest Expense
580 Other Financial Charges
970 Interest Expense
980 US Federal Income Taxes
8100 Salaries and Wages Expense
8200 Payroll Allowances
8300 Employee Benefits
1 of 22
Journal - Y1
Date Ent.# Accounts DR CR
1/31 1 471 Paid-in Capital $210,000.00
10 Cash $210,000.00

Figure 14

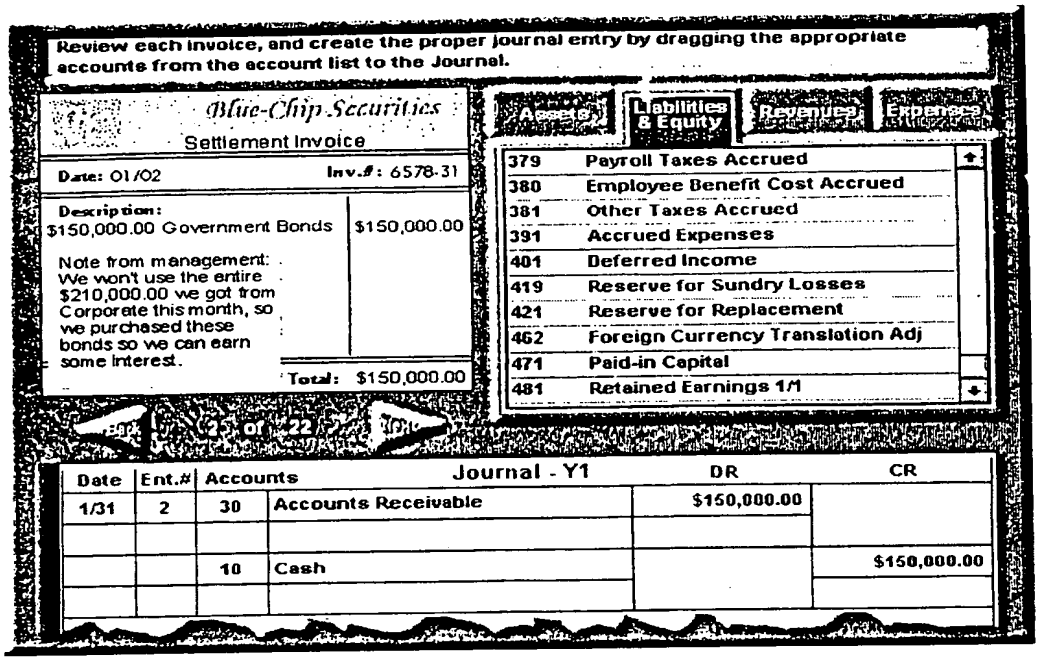

Figure 15

11/74

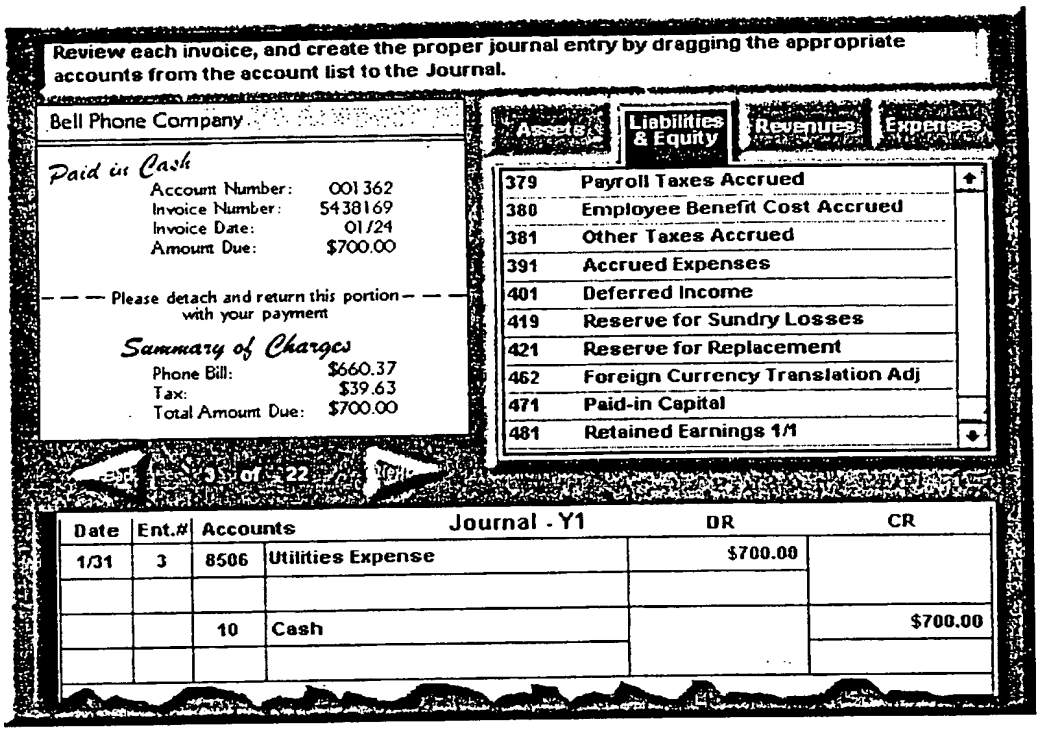

Figure 16

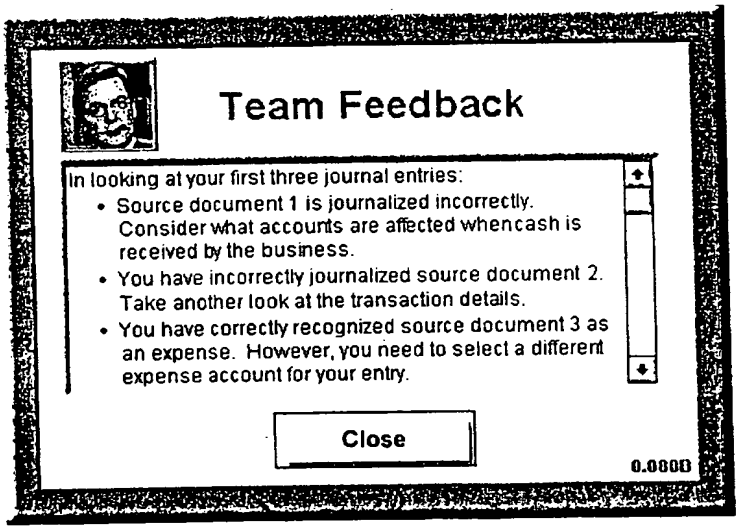

Figure 17

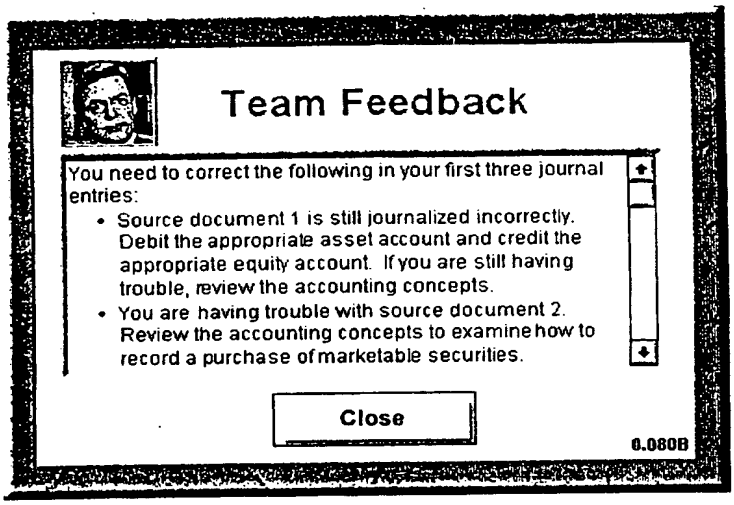

Figure 18

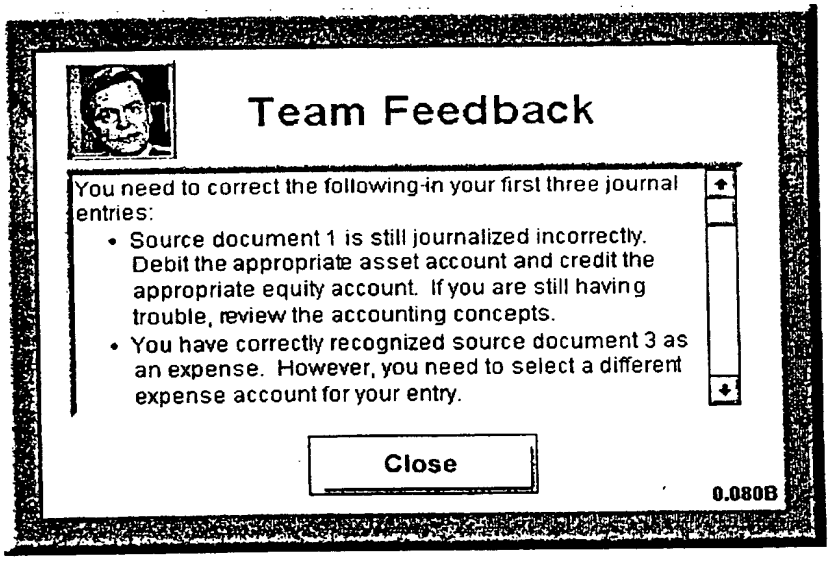

Figure 19

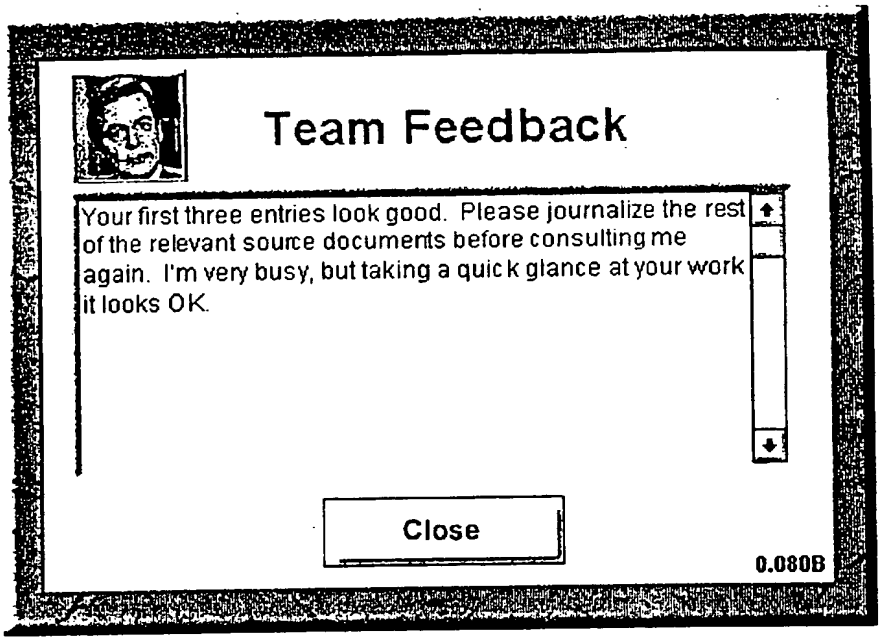

Figure 20

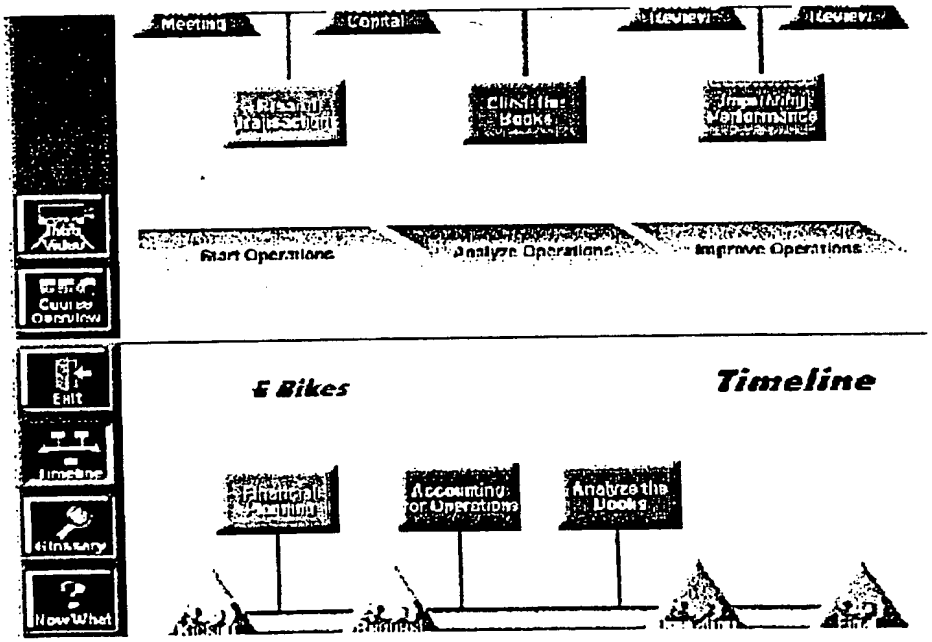

Figure 21

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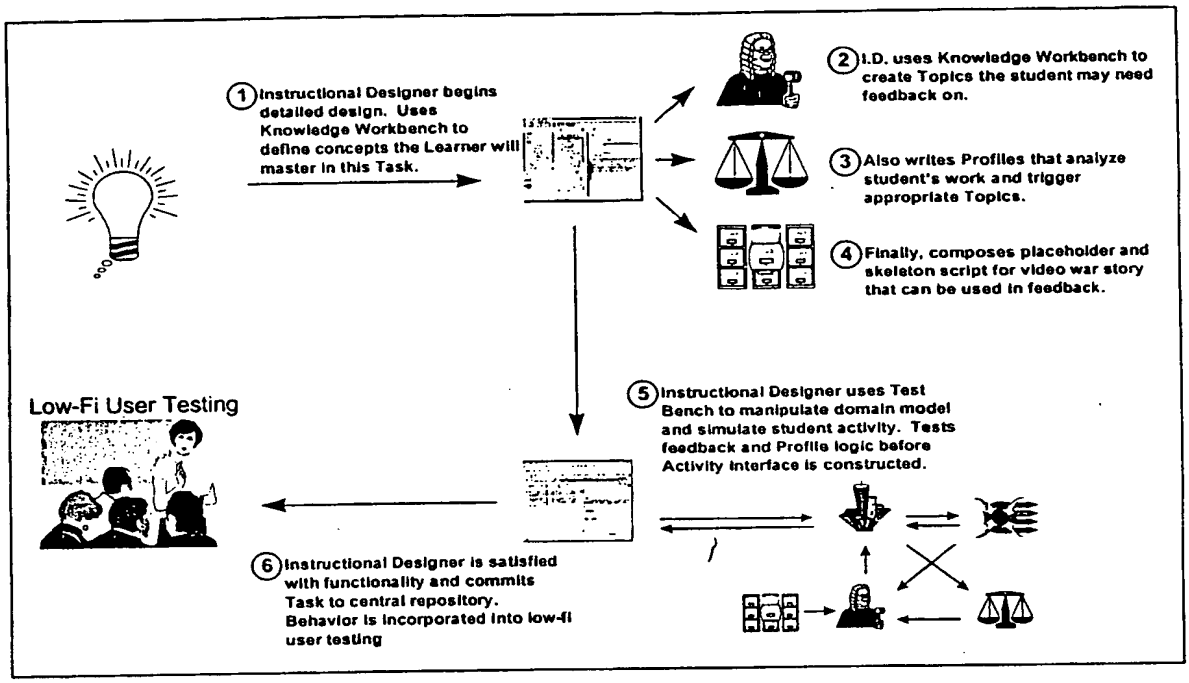
1 Instructional Designer begins detailed design. Uses Knowledge Workbench to define concepts the Learner will master in this Task.
2 I.D. uses Knowledge Workbench to create Topics the student may need feedback on.
3 Also writes Profiles that analyze student's work and trigger appropriate Topics.
4 Finally, composes placeholder and skeleton script for video war story that can be used in feedback.
5 Instructional Designer uses Test Bench to manipulate domain model and simulate student activity. Tests feedback and Profile logic before Activity interface is constructed.
Low-Fi User Testing
6 Instructional Designer is satisfied with functionality and commits Task to central repository. Behavior is incorporated into low-fi user testing

FIGURE 22

10/009577

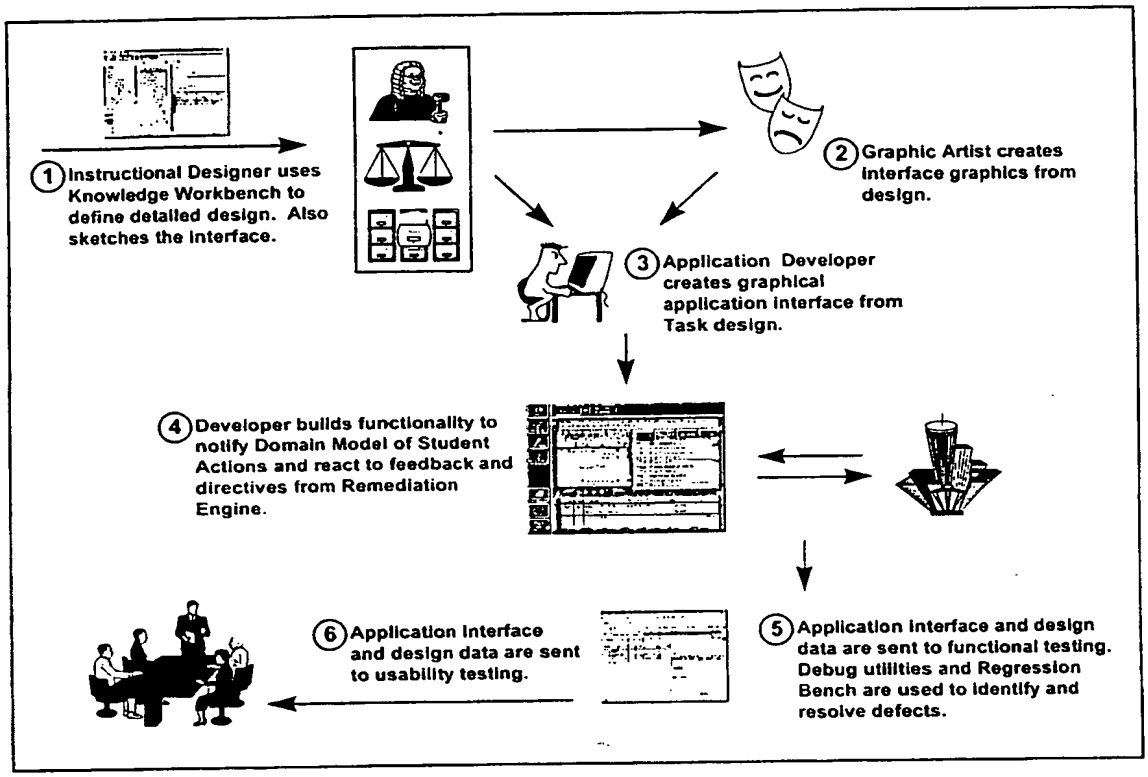

FIGURE 23

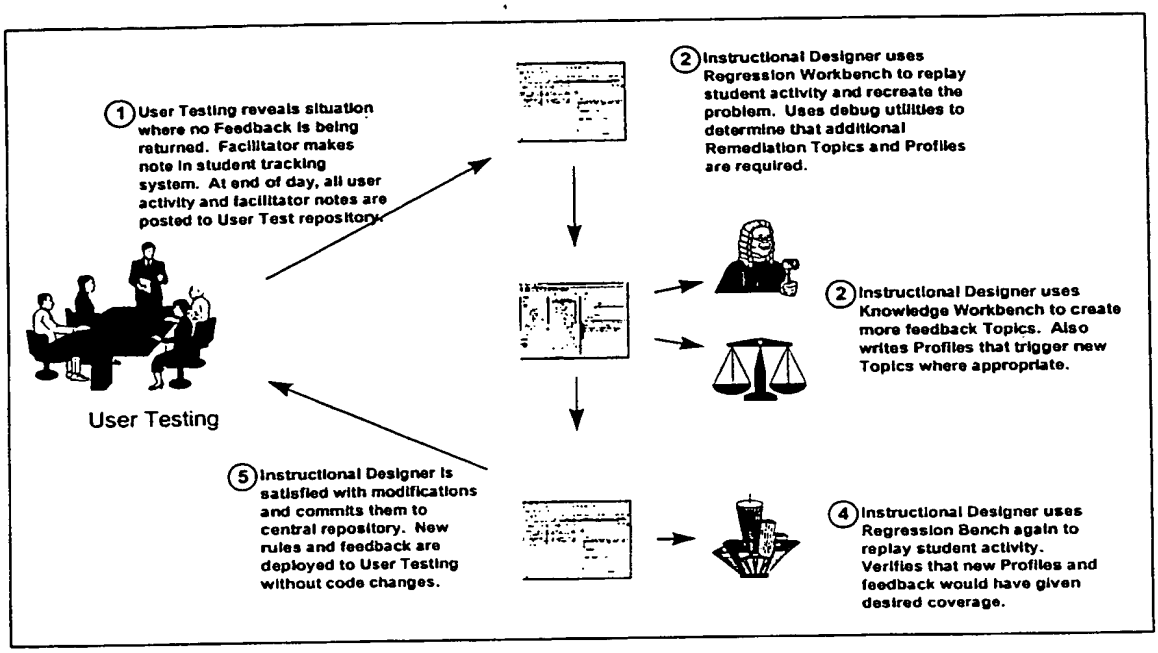
1 User Testing reveals situation where no Feedback is being returned. Facilitator makes note in student tracking system. At end of day, all user activity and facilitator notes are posted to User Test repository.
User Testing
2 Instructional Designer uses Regression Workbench to replay student activity and recreate the problem. Uses debug utilities to determine that additional Remediation Topics and Profiles are required.
2 Instructional Designer uses Knowledge Workbench to create more feedback Topics. Also writes Profiles that trigger new Topics where appropriate.
4 Instructional Designer uses Regression Bench again to replay student activity. Verifies that new Profiles and feedback would have given desired coverage.
5 Instructional Designer is satisfied with modifications and commits them to central repository. New rules and feedback are deployed to User Testing without code changes.

FIGURE 24

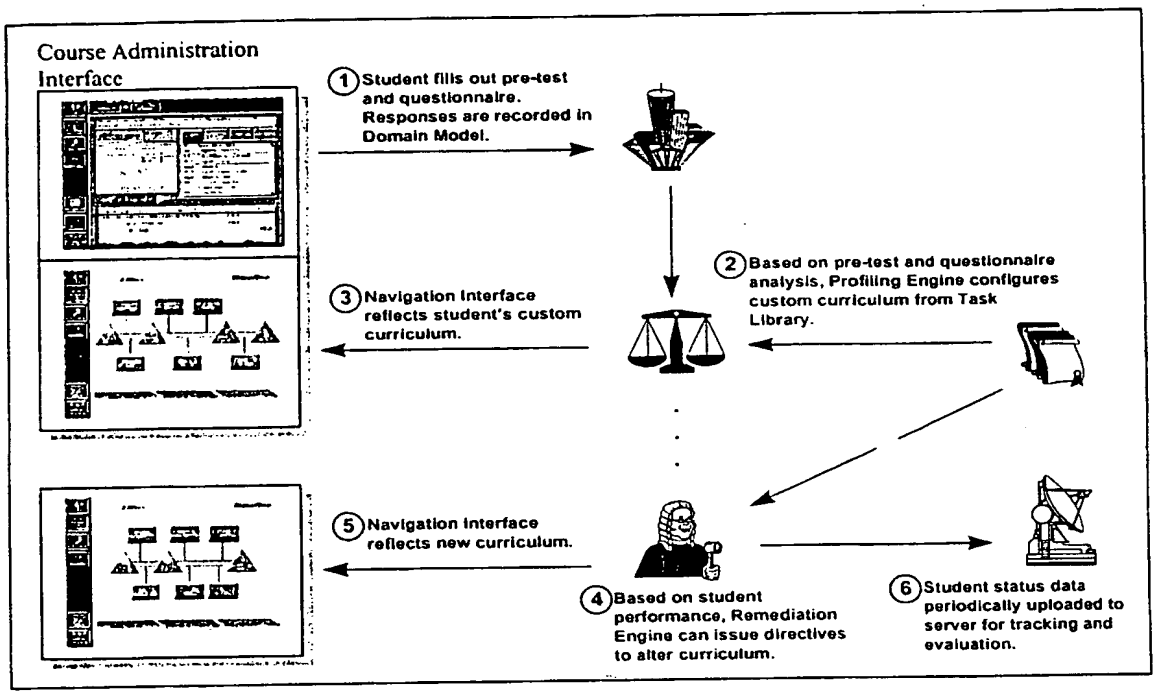
Course Administration Interface
1 Student fills out pre-test and questionnaire. Responses are recorded in Domain Model.
2 Based on pre-test and questionnaire analysis, Profiling Engine configures custom curriculum from Task Library.
3 Navigation Interface reflects student's custom curriculum.
4 Based on student performance, Remediation Engine can issue directives to alter curriculum.
5 Navigation Interface reflects new curriculum.
6 Student status data periodically uploaded to server for tracking and evaluation.

FIGURE 25

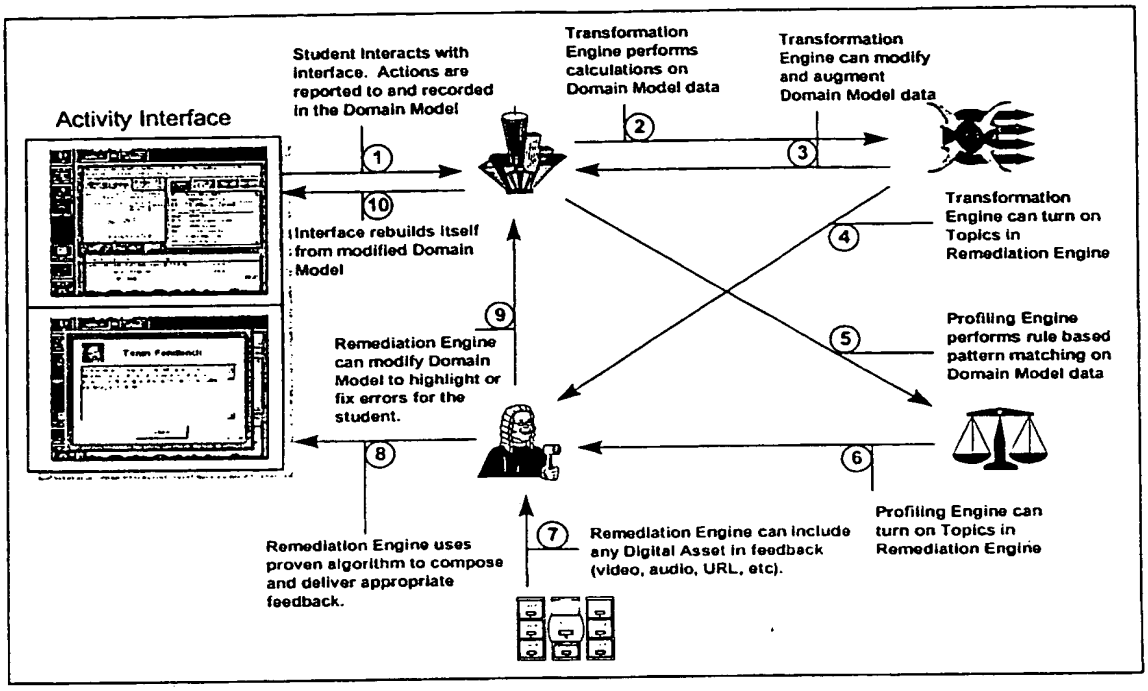
Activity Interface
Student Interacts with interface. Actions are reported to and recorded in the Domain Model
Transformation Engine performs calculations on Domain Model data
Transformation Engine can modify and augment Domain Model data
Transformation Engine can turn on Topics in Remediation Engine
Profiling Engine performs rule based pattern matching on Domain Model data
Profiling Engine can turn on Topics in Remediation Engine
Remediation Engine can modify Domain Model to highlight or fix errors for the student.
Remediation Engine can include any Digital Asset in feedback (video, audio, URL, etc).
Remediation Engine uses proven algorithm to compose and deliver appropriate feedback.
Interface rebuilds itself from modified Domain Model
1
2
3
4
5
6
7
8
9
10

FIGURE 26

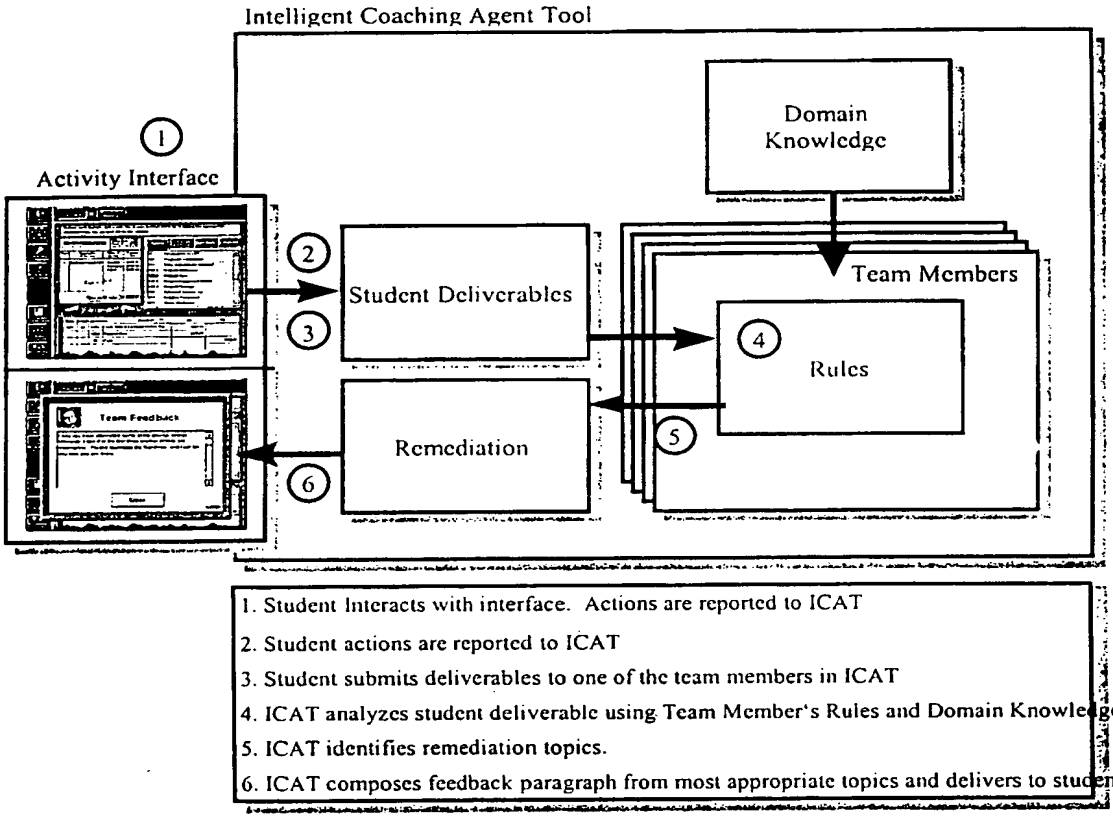
Intelligent Coaching Agent Tool
1
Activity Interface
Domain Knowledge
2
3
Student Deliverables
Team Members
4
Rules
5
Remediation
6
1. Student Interacts with interface. Actions are reported to ICAT
2. Student actions are reported to ICAT
3. Student submits deliverables to one of the team members in ICAT
4. ICAT analyzes student deliverable using Team Member's Rules and Domain Knowledge.
5. ICAT identifies remediation topics.
6. ICAT composes feedback paragraph from most appropriate topics and delivers to student.

FIGURE 27

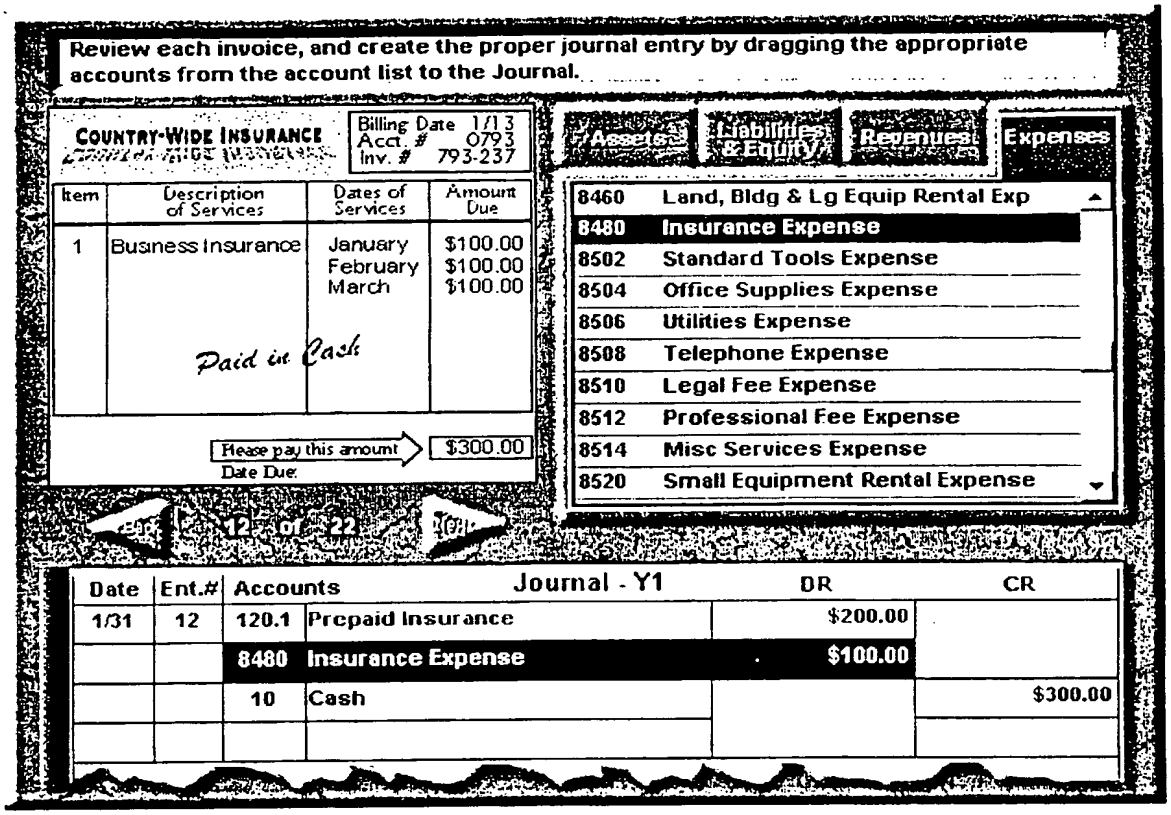

FIGURE 28

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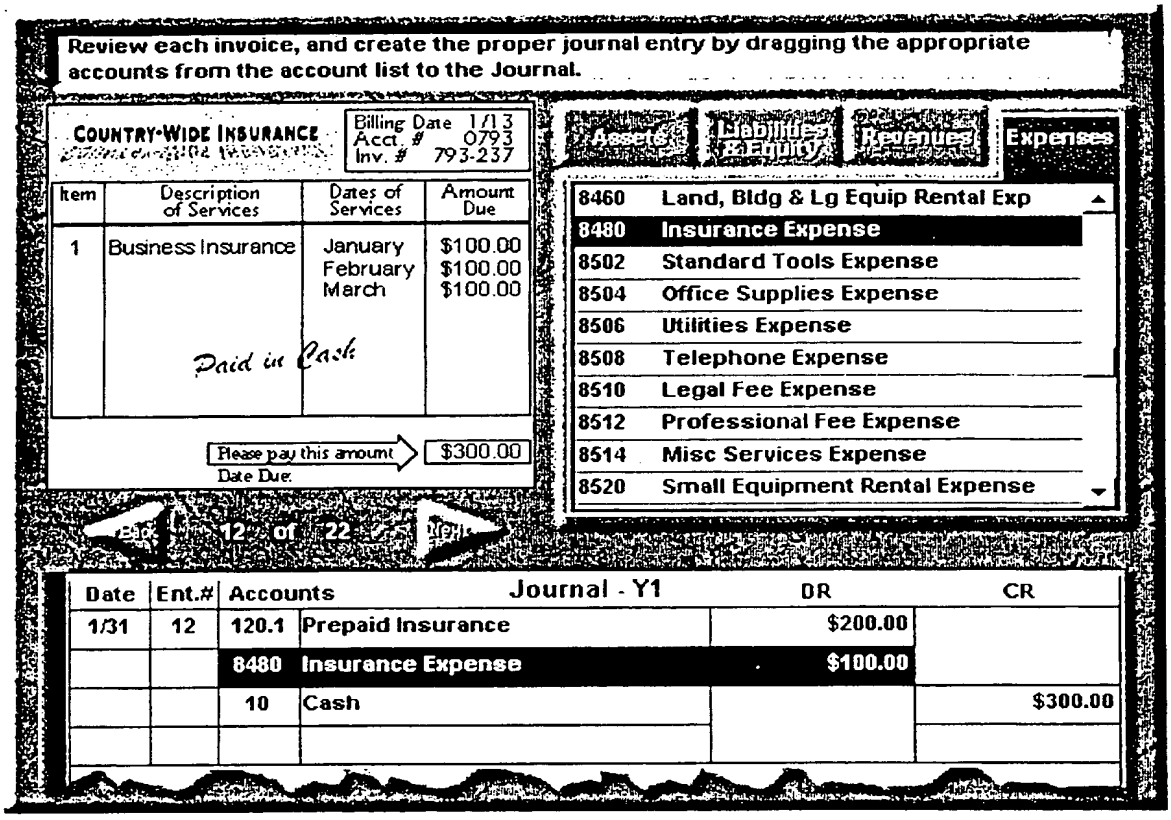


FIGURE 29

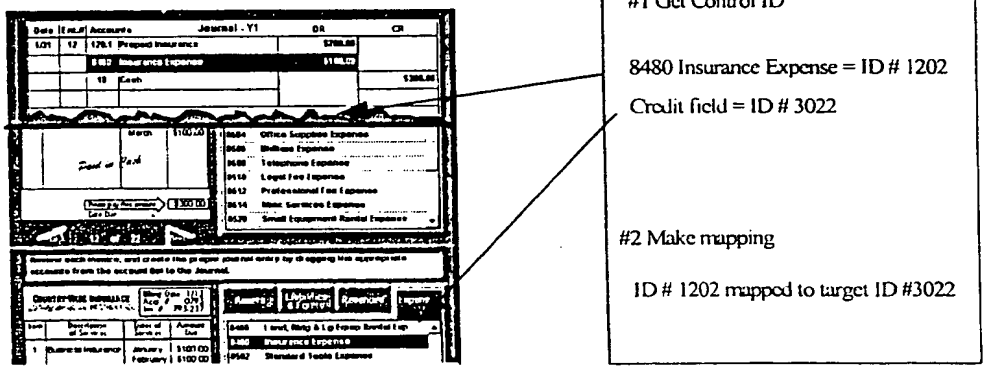


FIGURE 30

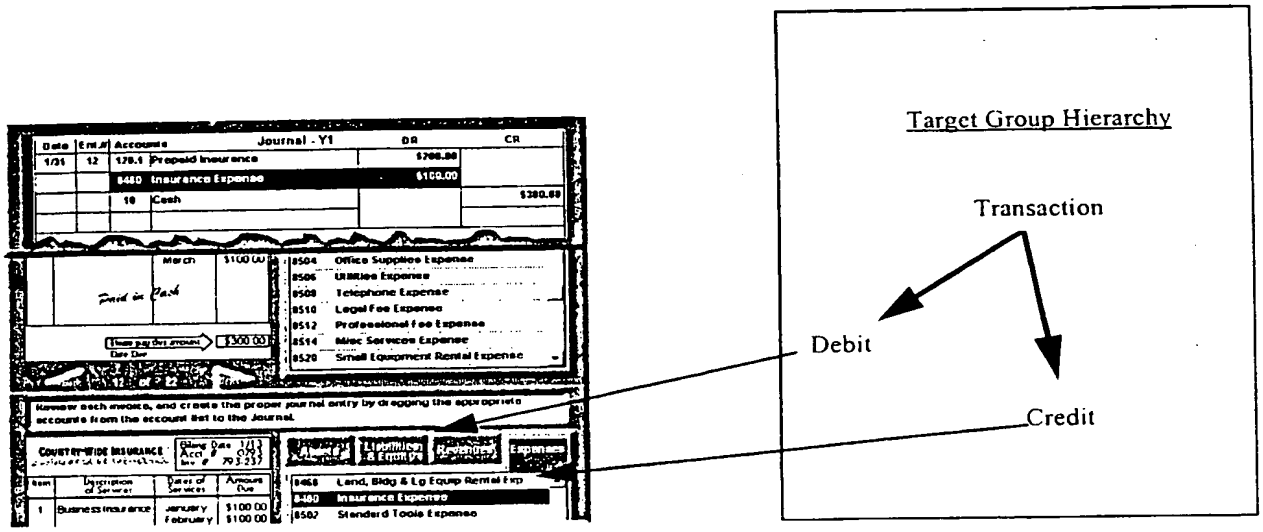


FIGURE 31

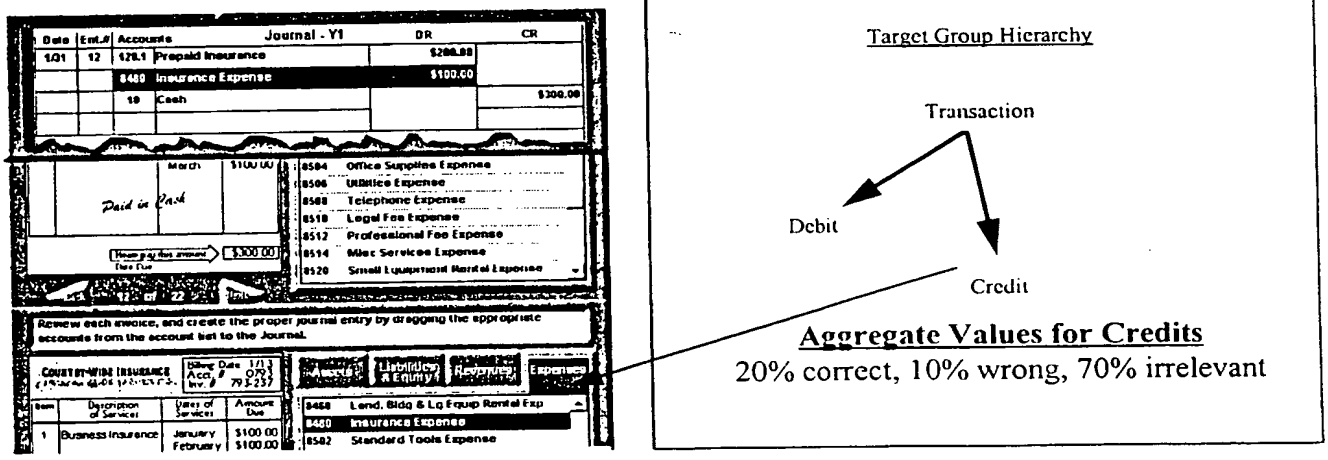


FIGURE 32

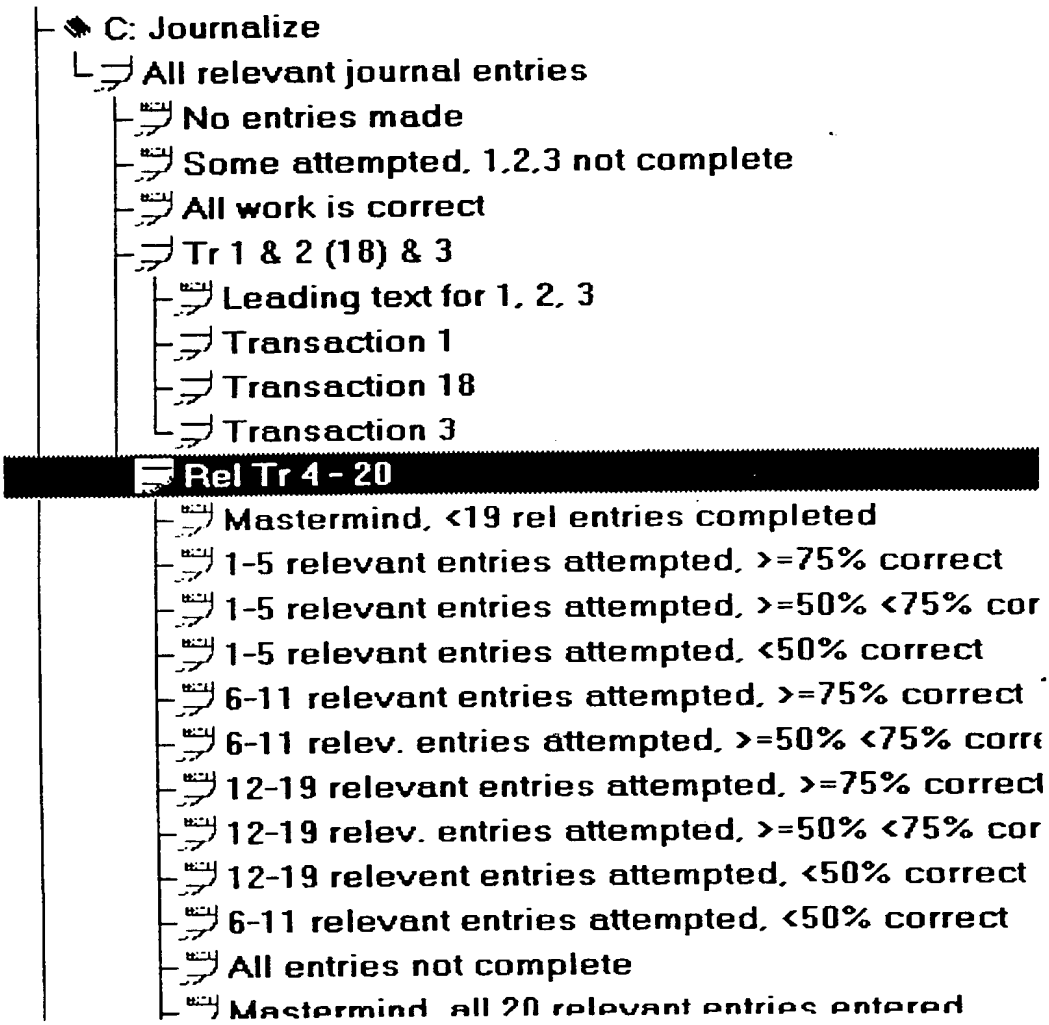

C: Journalize
All relevant journal entries
No entries made
Some attempted, 1,2,3 not complete
All work is correct
Tr 1 & 2 (18) & 3
Leading text for 1, 2, 3
Transaction 1
Transaction 18
Transaction 3
Rel Tr 4 - 20
Mastermind, <19 rel entries completed
1-5 relevant entries attempted, >=75% correct
1-5 relevant entries attempted, >=50% <75% cor
1-5 relevant entries attempted, <50% correct
6-11 relevant entries attempted, >=75% correct
6-11 relev. entries attempted, >=50% <75% corr
12-19 relevant entries attempted, >=75% correct
12-19 relev. entries attempted, >=50% <75% cor
12-19 relevent entries attempted, <50% correct
6-11 relevant entries attempted, <50% correct
All entries not complete
Mastermind, all 20 relevant entries entered

FIGURE 33

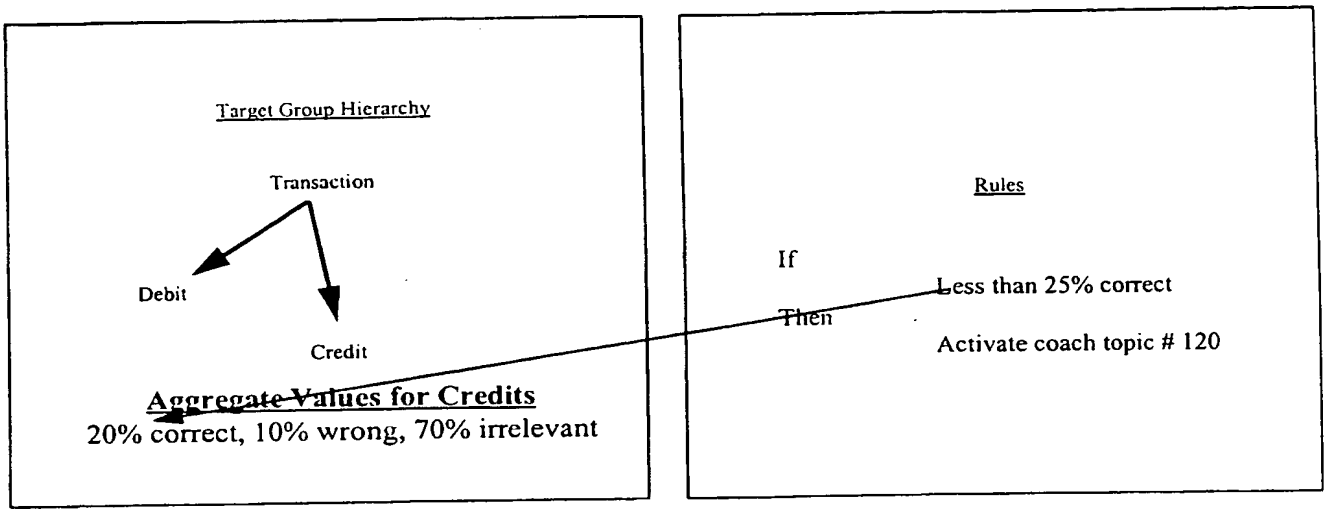


FIGURE 34

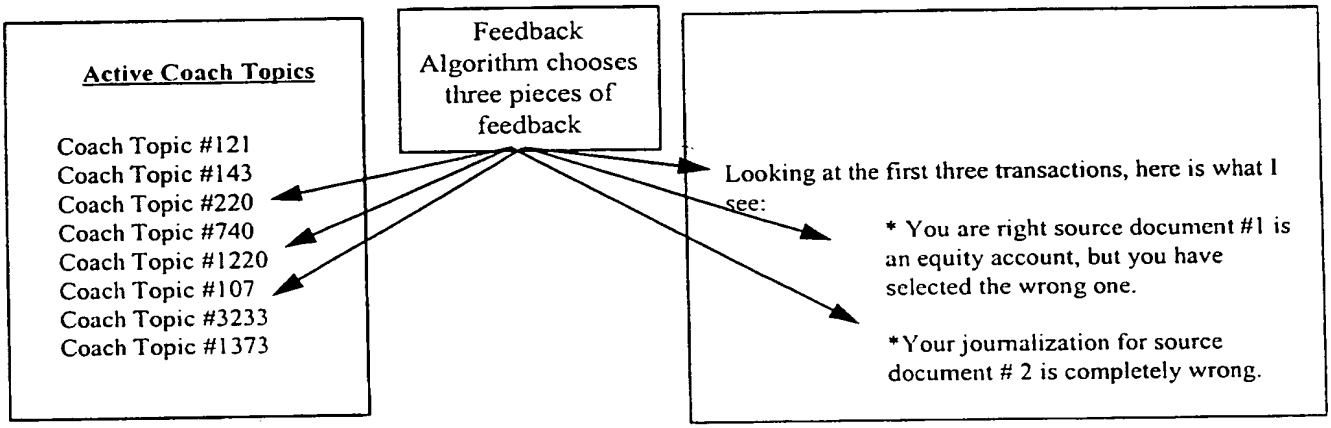


FIGURE 35

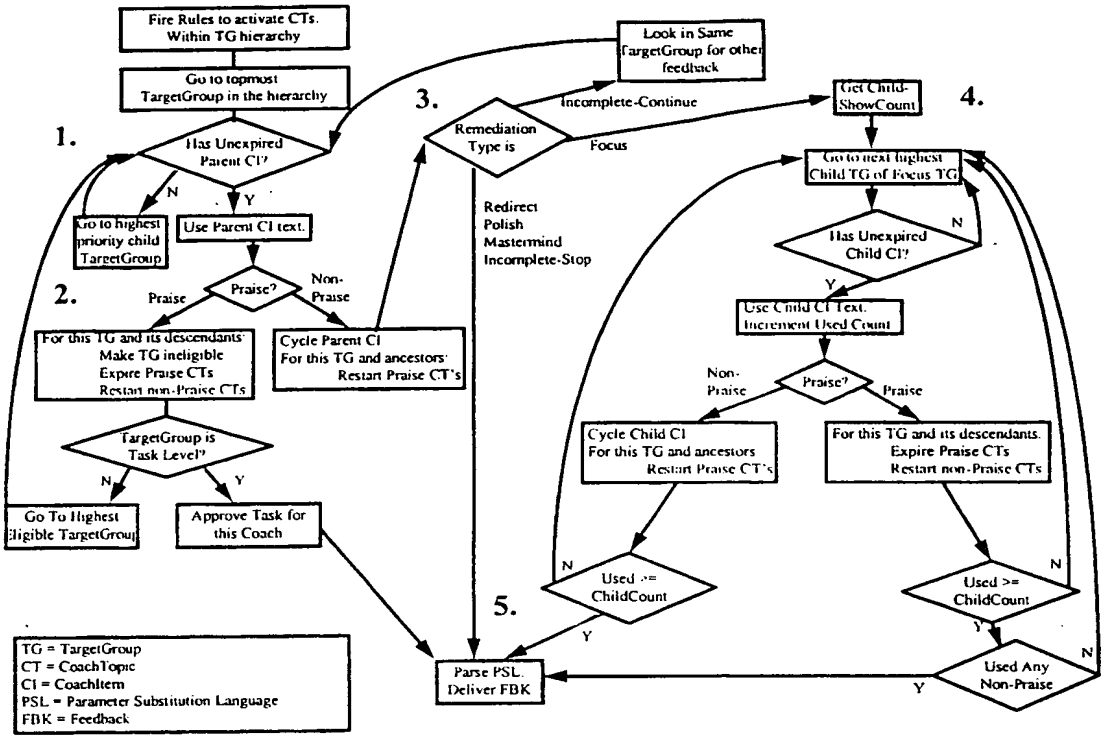

Fire Rules to activate CTs.
Within TG hierarchy
Go to topmost
TargetGroup in the hierarchy
1.
Has Unexpired
Parent CI?
N
Y
Go to highest
priority child
TargetGroup
Use Parent CI text.
2.
Praise?
Praise
Non-
Praise
For this TG and its descendants:
Make TG ineligible
Expire Praise CTs
Restart non-Praise CTs
Cycle Parent CI
For this TG and ancestors:
Restart Praise CT's
TargetGroup is
Task Level?
N
Y
Go To Highest
Eligible TargetGroup
Approve Task for
this Coach
3.
Remediation
Type is
Look in Same
TargetGroup for other
feedback
Incomplete-Continue
Focus
Redirect
Polish
Mastermind
Incomplete-Stop
4.
Get Child-
ShowCount
Go to next highest
Child TG of Focus TG
Has Unexpired
Child CI?
N
Y
Use Child CI Text.
Increment Used Count
Non-
Praise
Praise?
Praise
Cycle Child CI
For this TG and ancestors
Restart Praise CT's
For this TG and its descendants:
Expire Praise CTs
Restart non-Praise CTs
N
Used >=
ChildCount
Y
5.
N
Used >=
ChildCount
Y
N
Used Any
Non-Praise
Y
Parse PSL.
Deliver FBK
TG = TargetGroup
CT = CoachTopic
CI = CoachItem
PSL = Parameter Substitution Language
FBK = Feedback

FIGURE 36

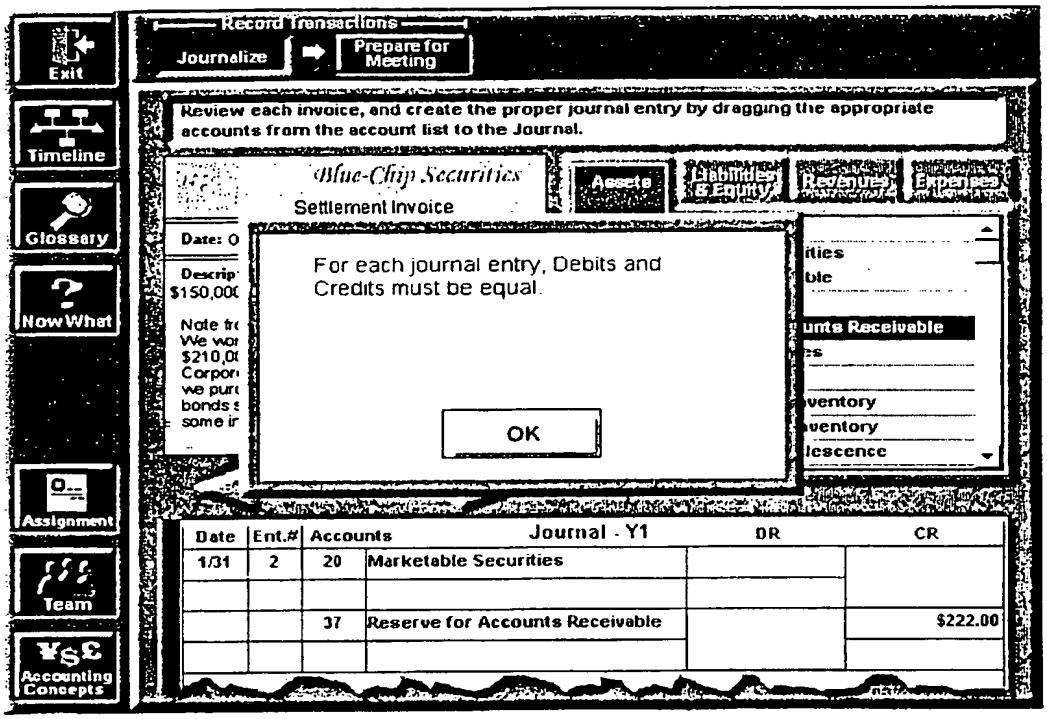


FIGURE 37

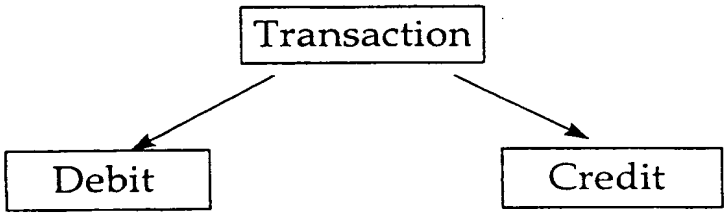


FIGURE 38

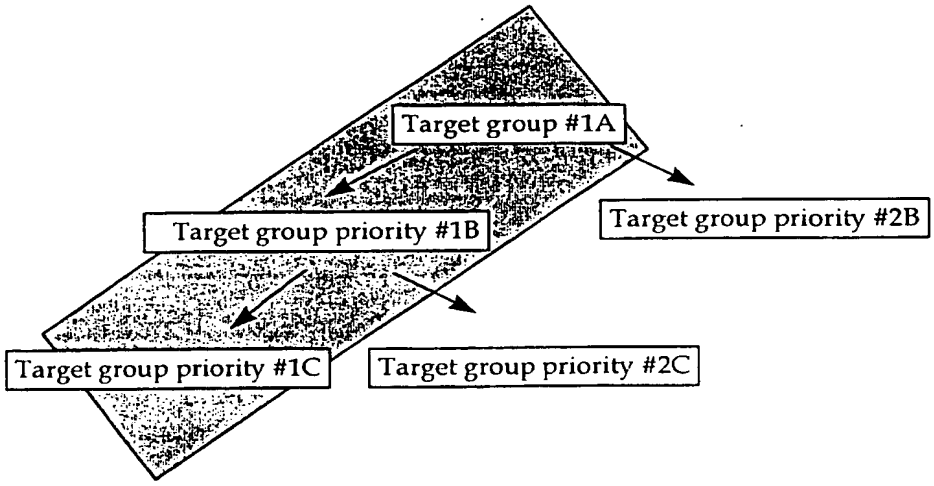

Target group #1A
Target group priority #1B
Target group priority #2B
Target group priority #1C
Target group priority #2C

FIGURE 39

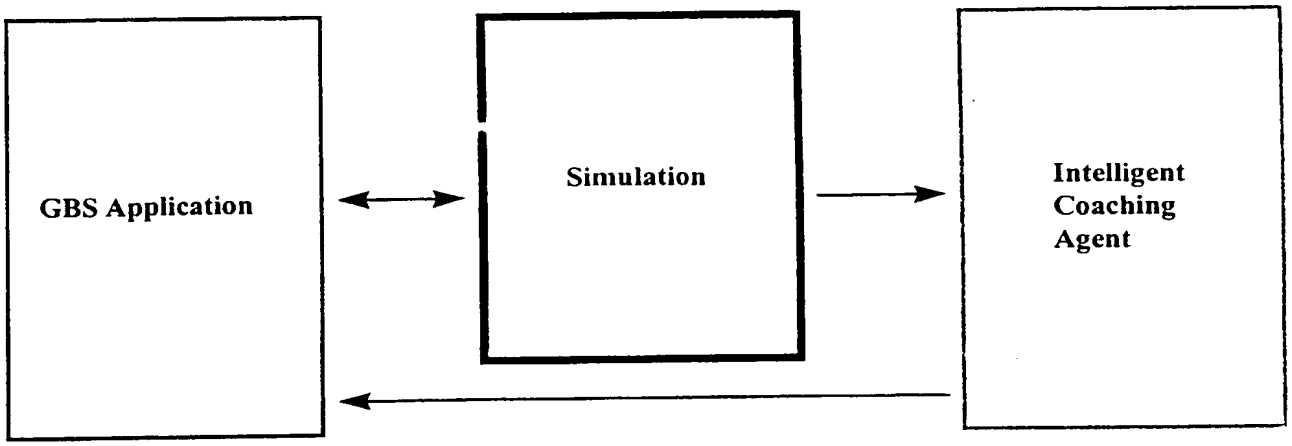


FIGURE 40

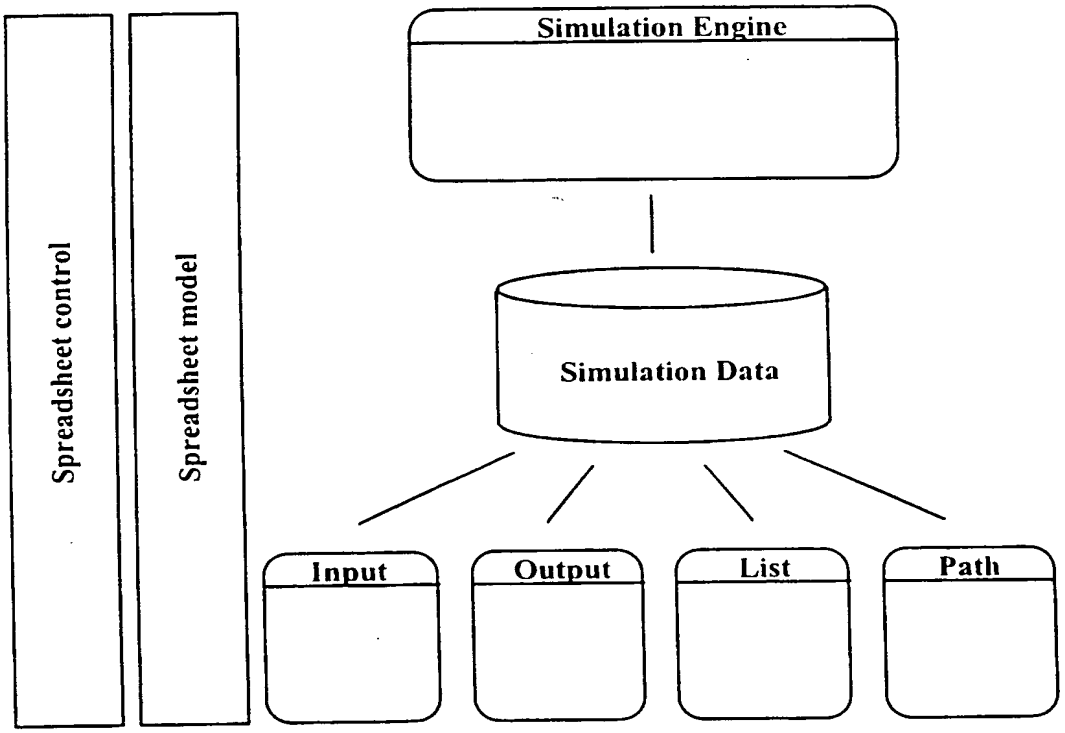


FIGURE 41

Distinct_Input		9999		
	A	B	C	D
1	*Question 1*			
2		1 + 1 =	9999	
3				

FIGURE 42

DragDrop_In...		0	
	A	B	C	D
4	*Question 2*			
5		What's the result of 4 + 2 ?		
6		a) 2		
7		b) 8		
8		c) 6		
9		d) None of the above		
10				
11		1204	0	
12				

FIGURE 43

	1			
1.1	1.2	1.3	...	1.n
2.1	2.2	2.3	...	2.n
.	.	.		.
.	.	.		.
.	.	.		.
n.1	n.2	n.3	...	n.n

FIGURE 44

24	~MyList~1211	$7.00	screwdriver
25	~MyList~1213	$12.50	pail
26	~MyList~1214	$0.50	sandpaper
27			
28			
29			

17	screwdriver	$7.00
18	chisel	$4.00
19	pail	$12.50
20	sandpaper	$0.50

21 Select the maximum number of products so that the total is closest to $20.00

22

23 Description

The_List

	A	B	C	D	E	F	G
13	Question 3						
14	In a hardware store you can find these products:						
15			hammer	$13.00			
16			saw	$15.00			

FIGURE 45

Distinct_Out... =SUM(C24:C29)

	A	B	C	D	E	F	G
13	Question 3						
14		In a hardware store you can find these products:					
15			hammer	$13.00			
16			saw	$15.00			
17			screwdriver	$7.00			
18			chisel	$4.00			
19			pail	$12.50			
20			sandpaper	$0.50			
21		Select the maximum number of products so that the total is closest to $20.00					
22							
23				Description		Actual total	
24		~MyList~1211	$7.00	screwdriver		$20.00	
25		~MyList~1213	$12.50	pail			
26		~MyList~1214	$0.50	sandpaper			
27							
28							
29							
30							
31							

FIGURE 46

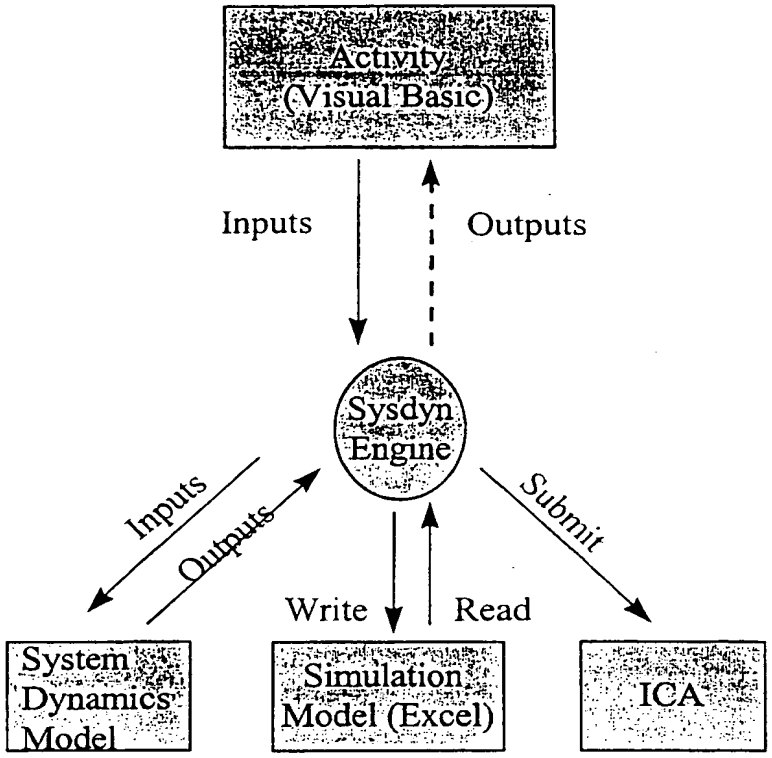

Activity (Visual Basic)
Inputs
Outputs
Sysdyn Engine
Inputs
Outputs
Submit
Write
Read
System Dynamics Model
Simulation Model (Excel)
ICA

FIGURE 47

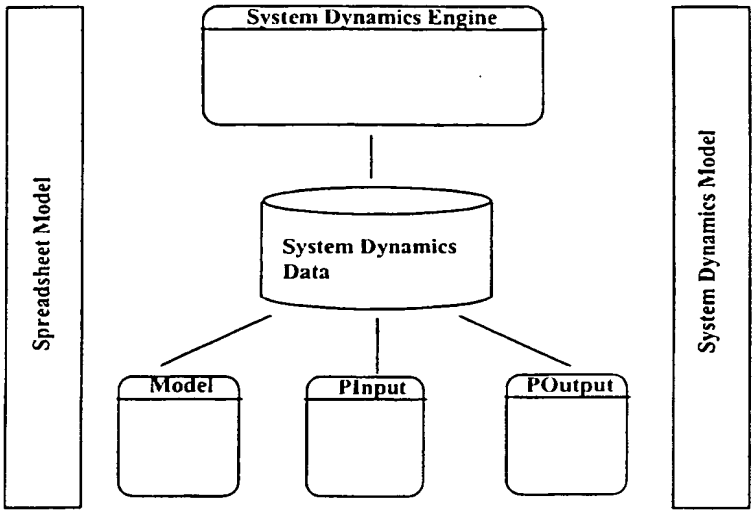

System Dynamics Engine
Spreadsheet Model
System Dynamics Model
System Dynamics Data
Model
PInput
POutput

FIGURE 48

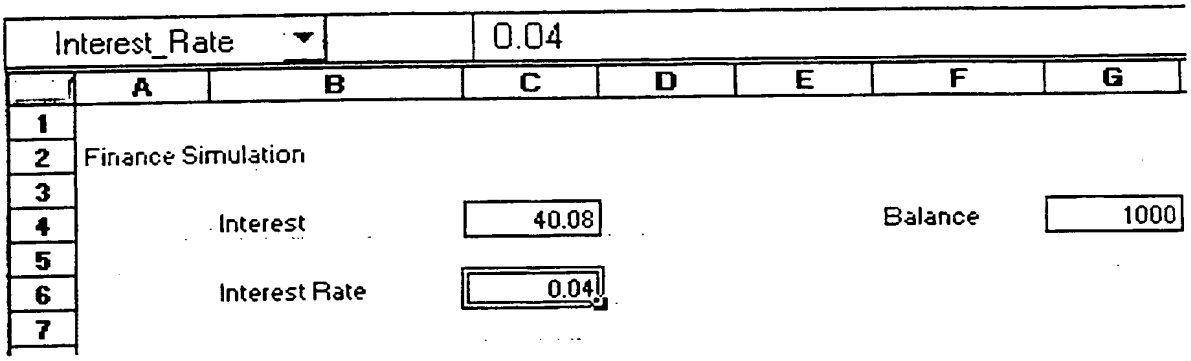


FIGURE 49

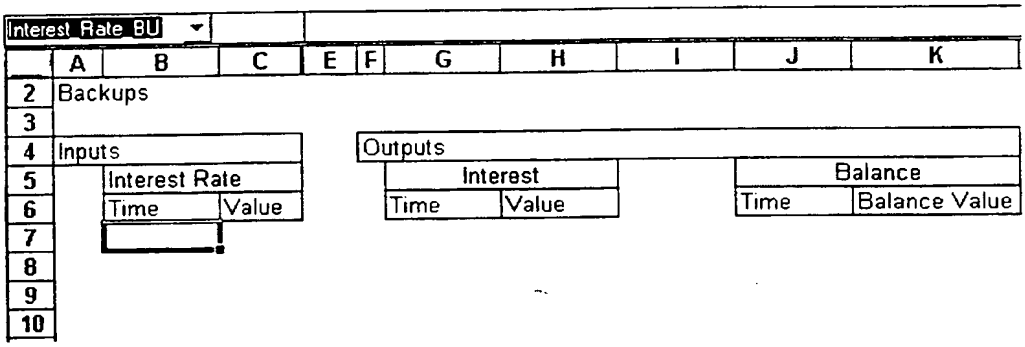


FIGURE 50

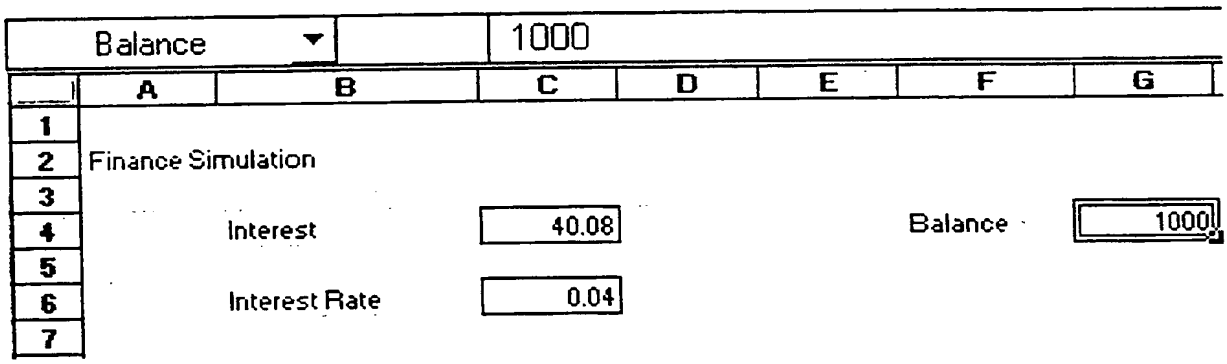


FIGURE 51

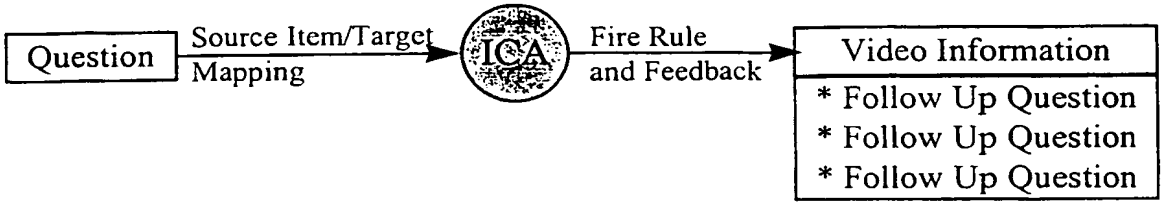


FIGURE 52

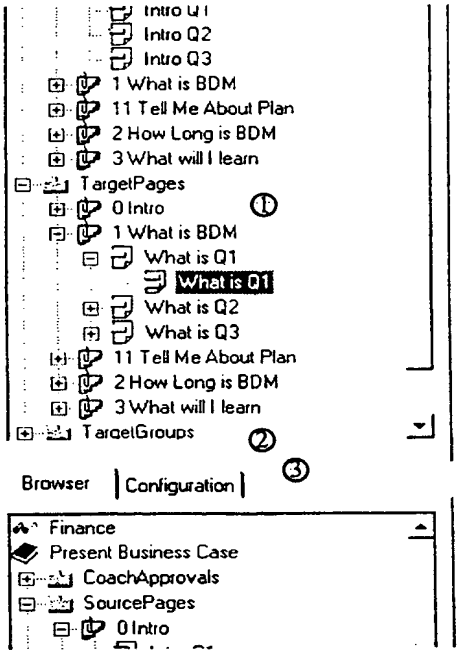


FIGURE 53

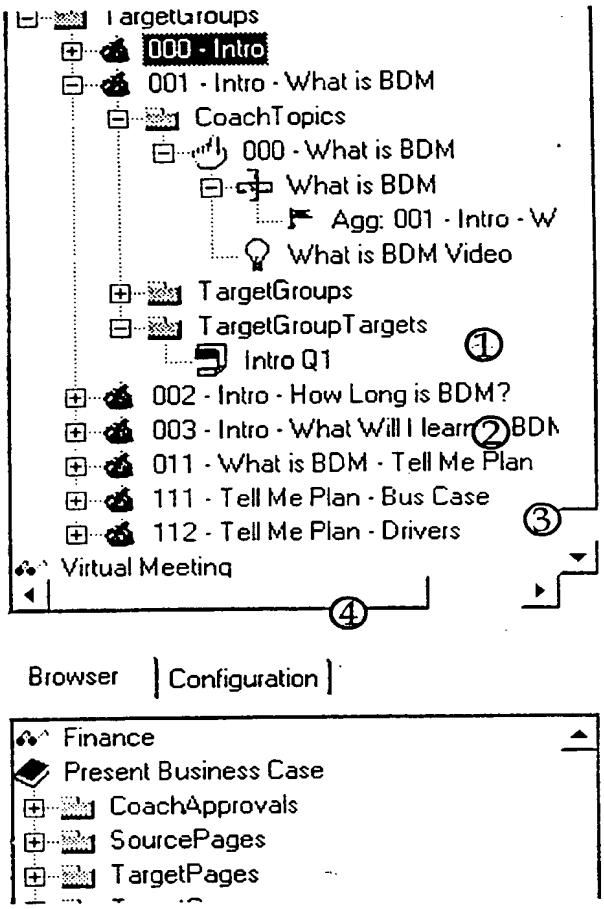

TargetGroups
000 - Intro
001 - Intro - What is BDM
CoachTopics
000 - What is BDM
What is BDM
Agg: 001 - Intro - W
What is BDM Video
TargetGroups
TargetGroupTargets
Intro Q1
002 - Intro - How Long is BDM?
003 - Intro - What Will I learn BDM
011 - What is BDM - Tell Me Plan
111 - Tell Me Plan - Bus Case
112 - Tell Me Plan - Drivers
Virtual Meeting
1
2
3
4
Browser
Configuration
Finance
Present Business Case
CoachApprovals
SourcePages
TargetPages

FIGURE 54

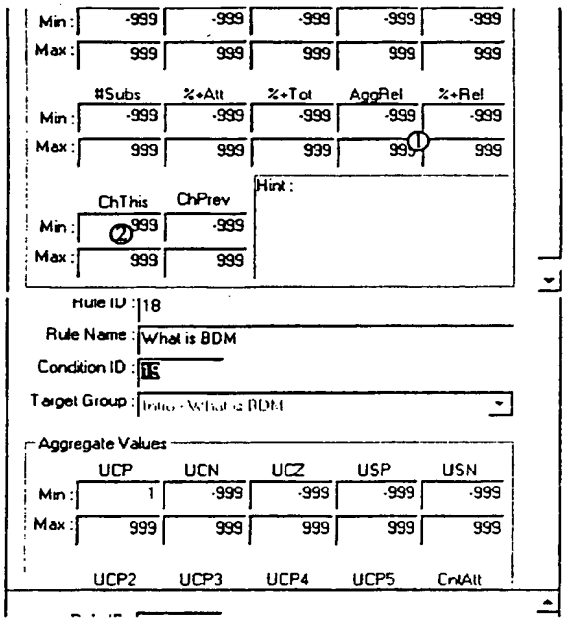


FIGURE 55

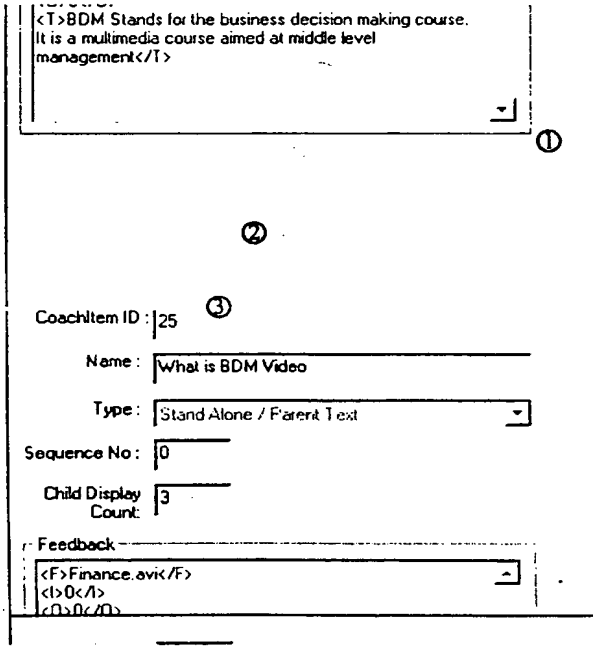


FIGURE 56

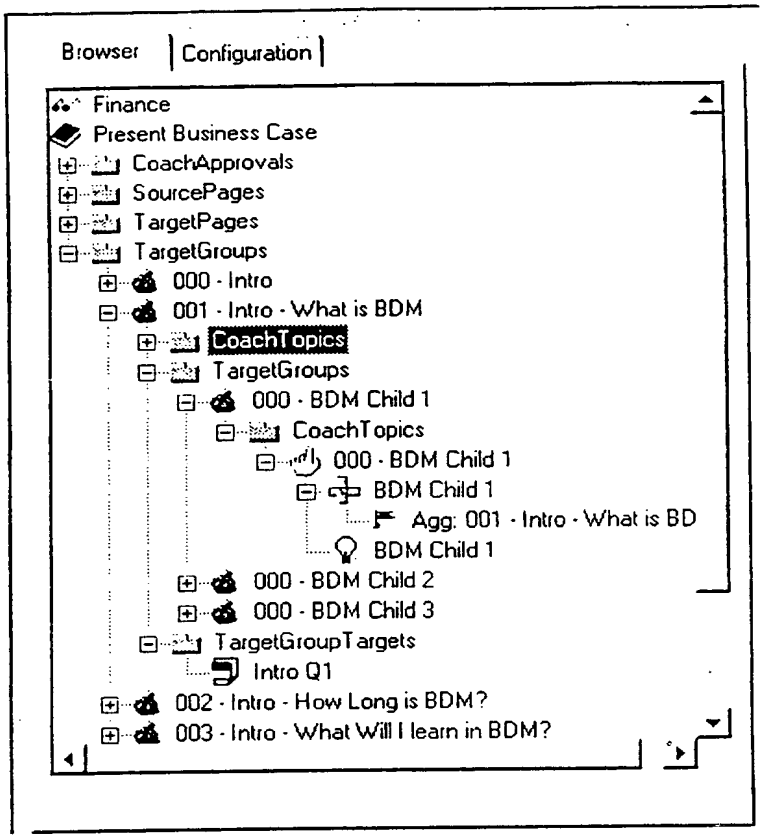

Browser
Configuration
Finance
Present Business Case
CoachApprovals
SourcePages
TargetPages
TargetGroups
000 - Intro
001 - Intro - What is BDM
CoachTopics
TargetGroups
000 - BDM Child 1
CoachTopics
000 - BDM Child 1
BDM Child 1
Agg: 001 - Intro - What is BD
BDM Child 1
000 - BDM Child 2
000 - BDM Child 3
TargetGroupTargets
Intro Q1
002 - Intro - How Long is BDM?
003 - Intro - What Will I learn in BDM?

FIGURE 57

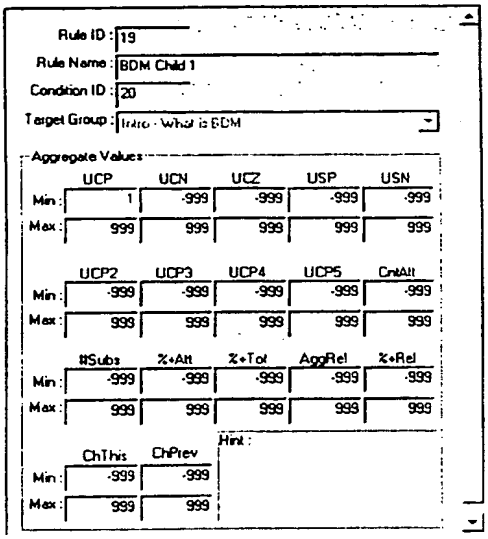


FIGURE 58

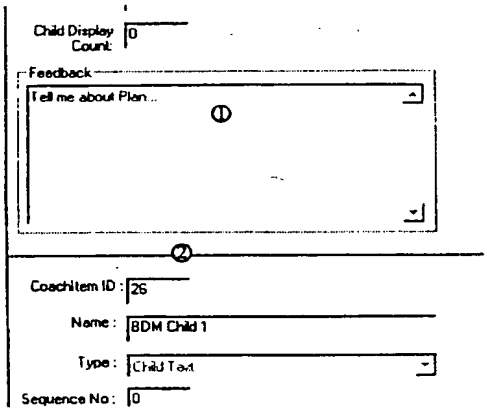


FIGURE 59

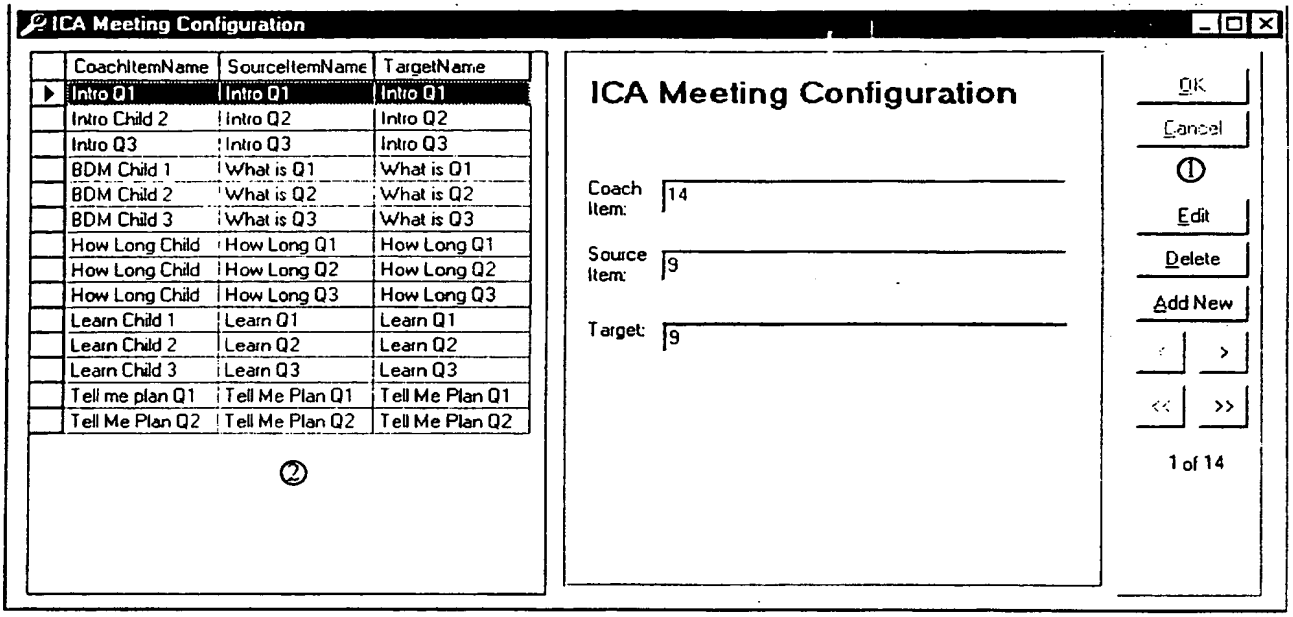


FIGURE 60

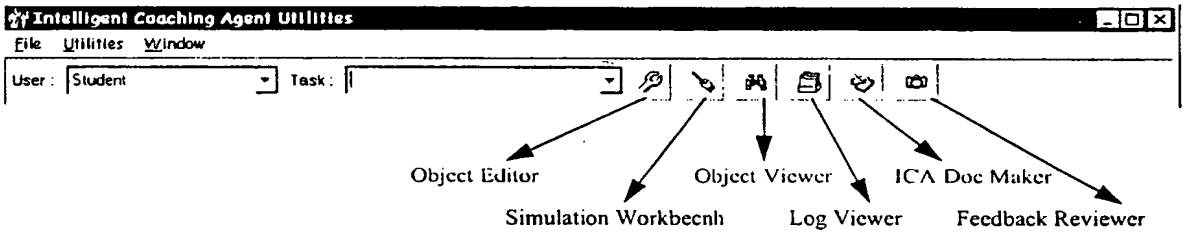


FIGURE 61

FIGURE 62

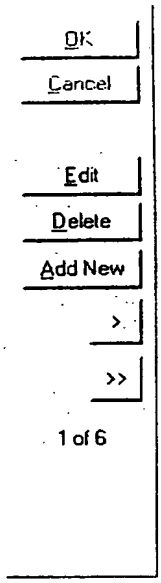


FIGURE 63

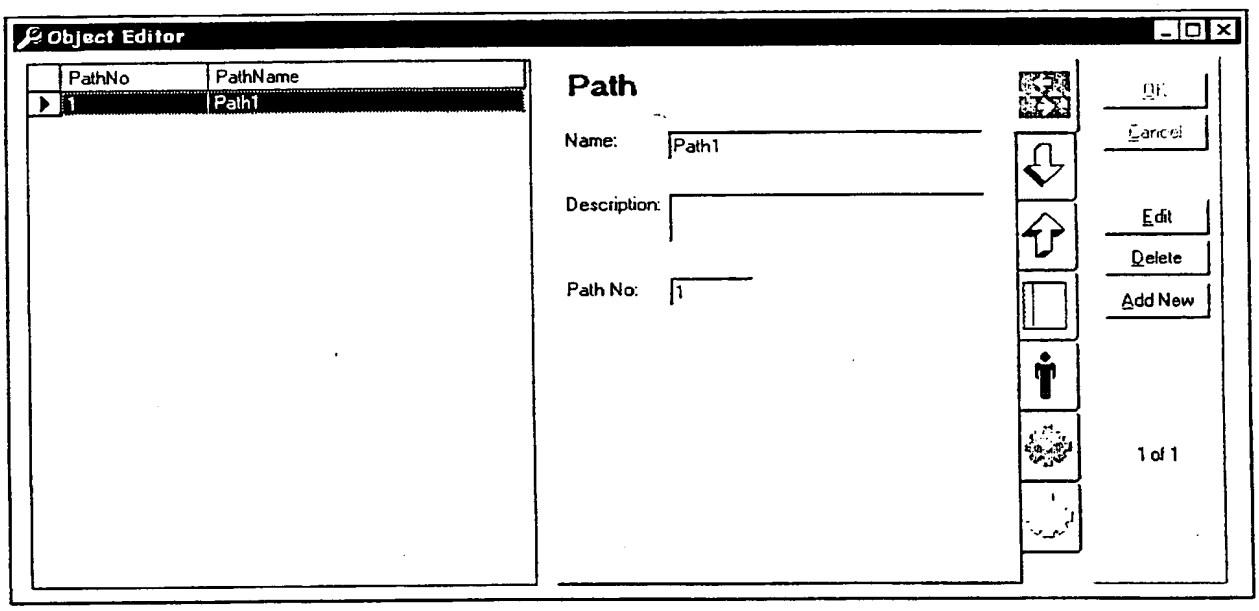


FIGURE 64

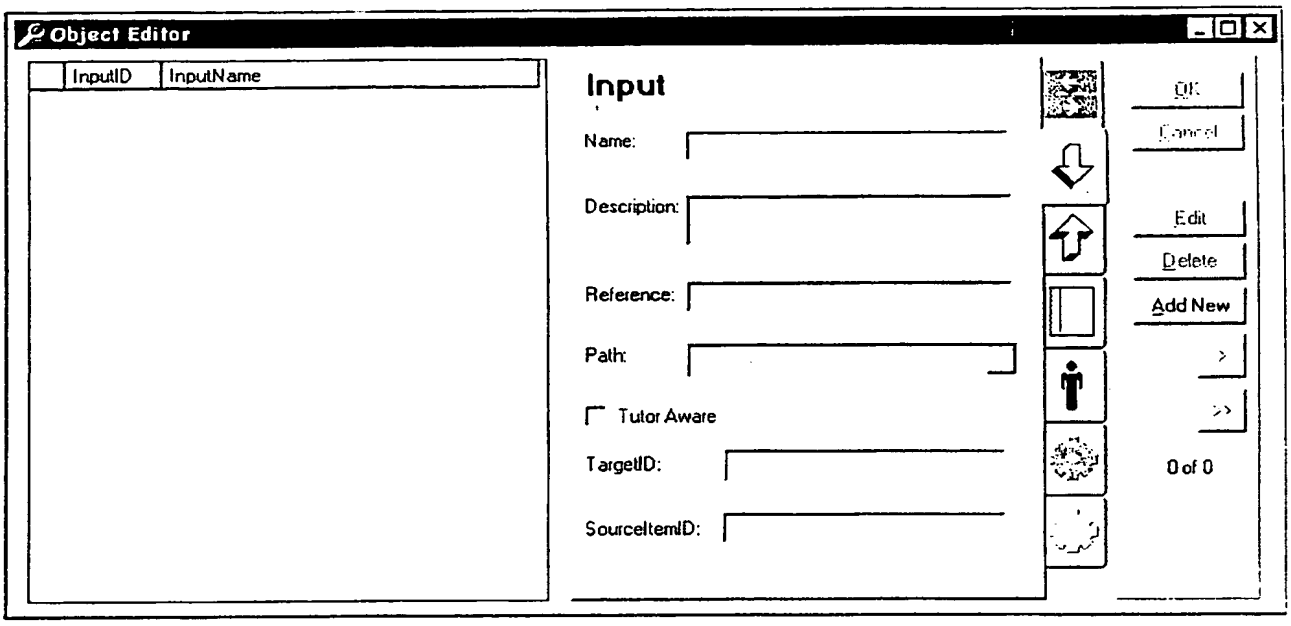


FIGURE 65

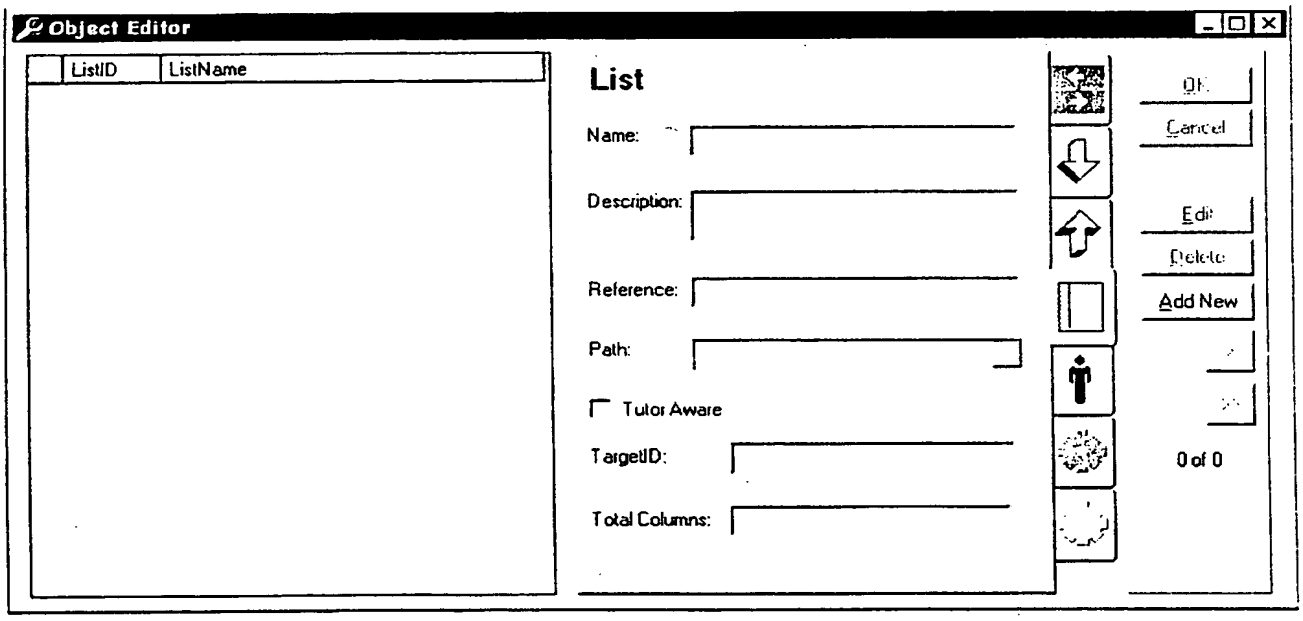


FIGURE 66

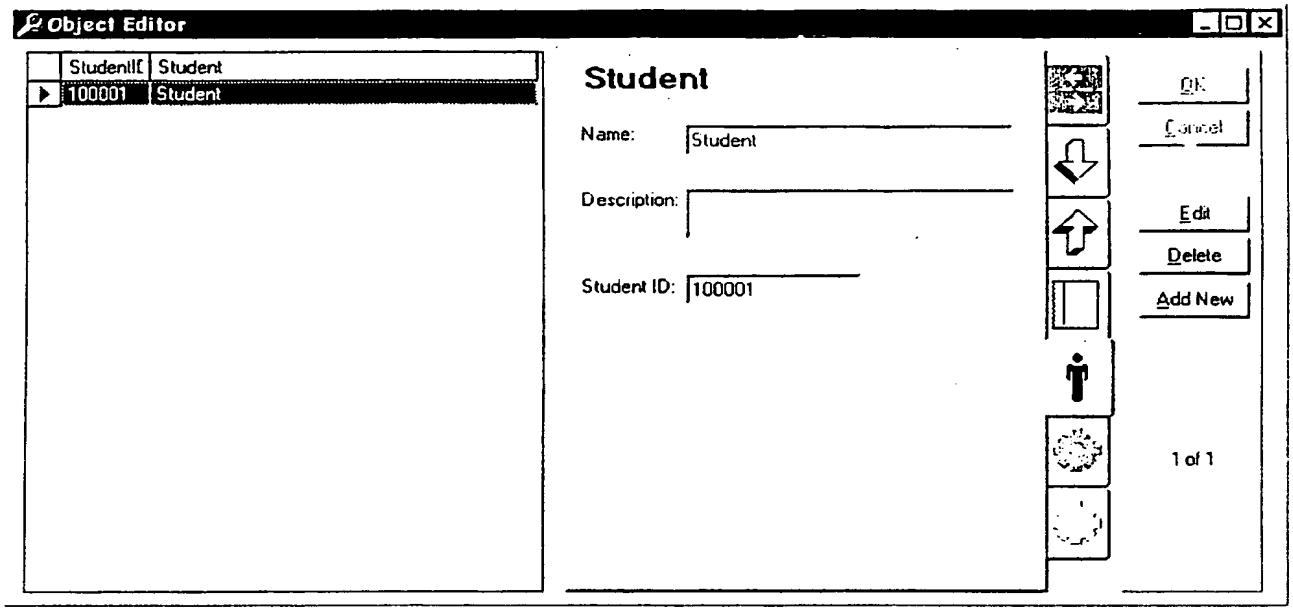


FIGURE 67A

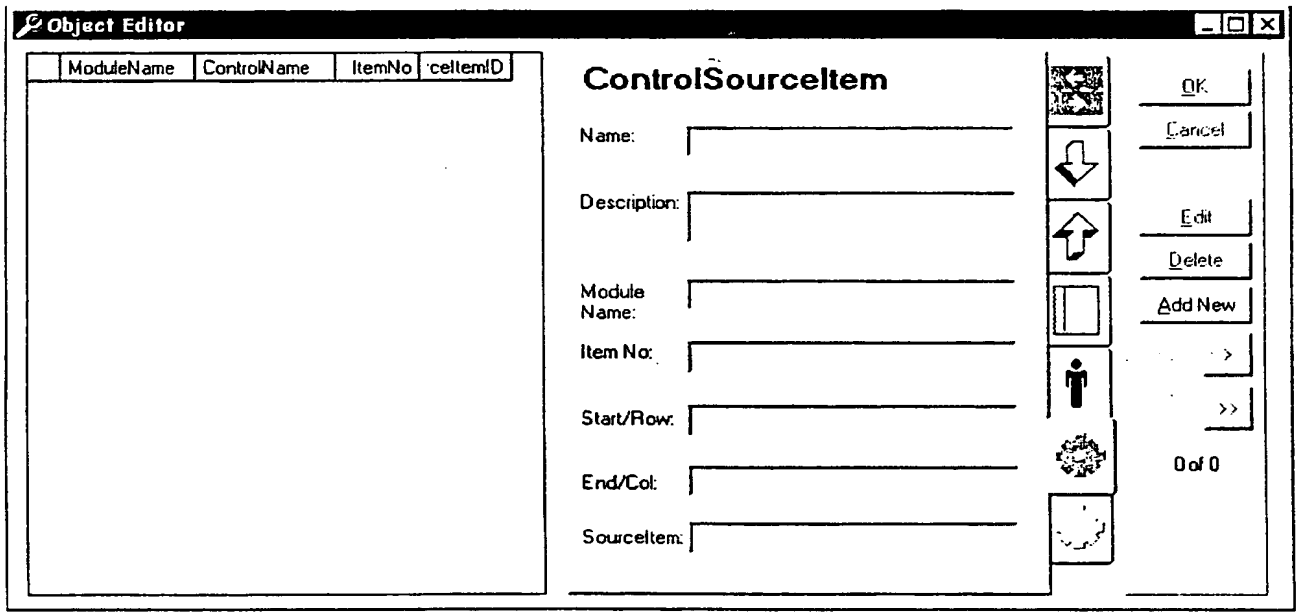


FIGURE 67B

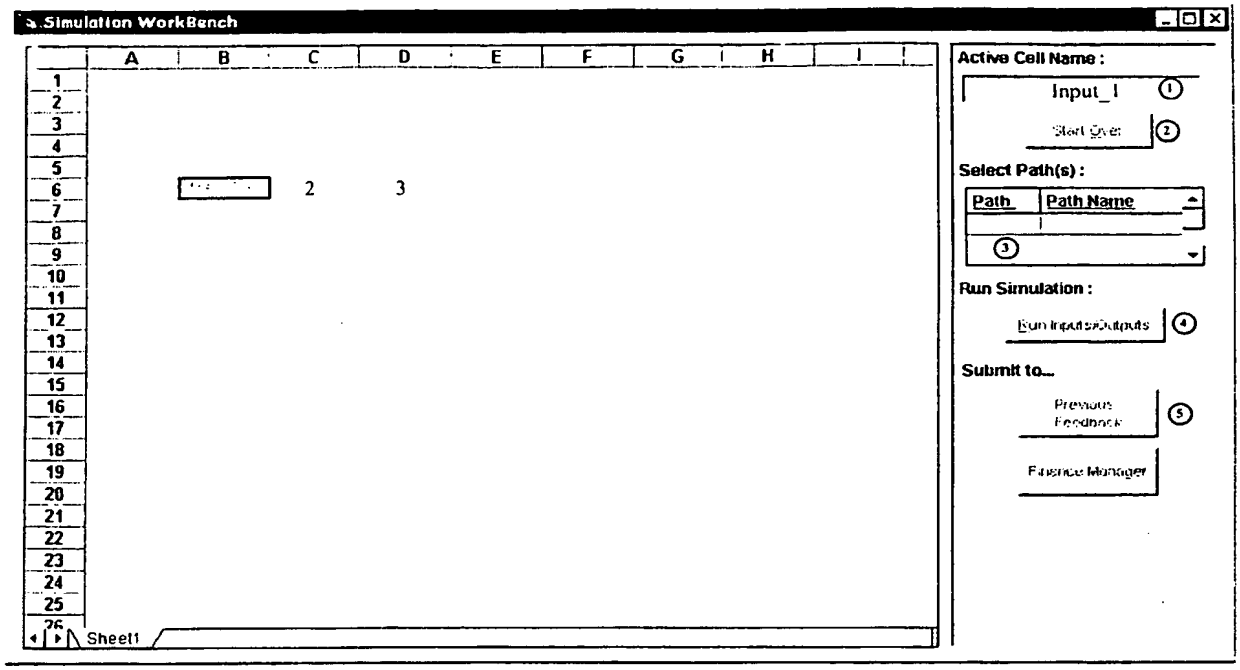


Figure 68

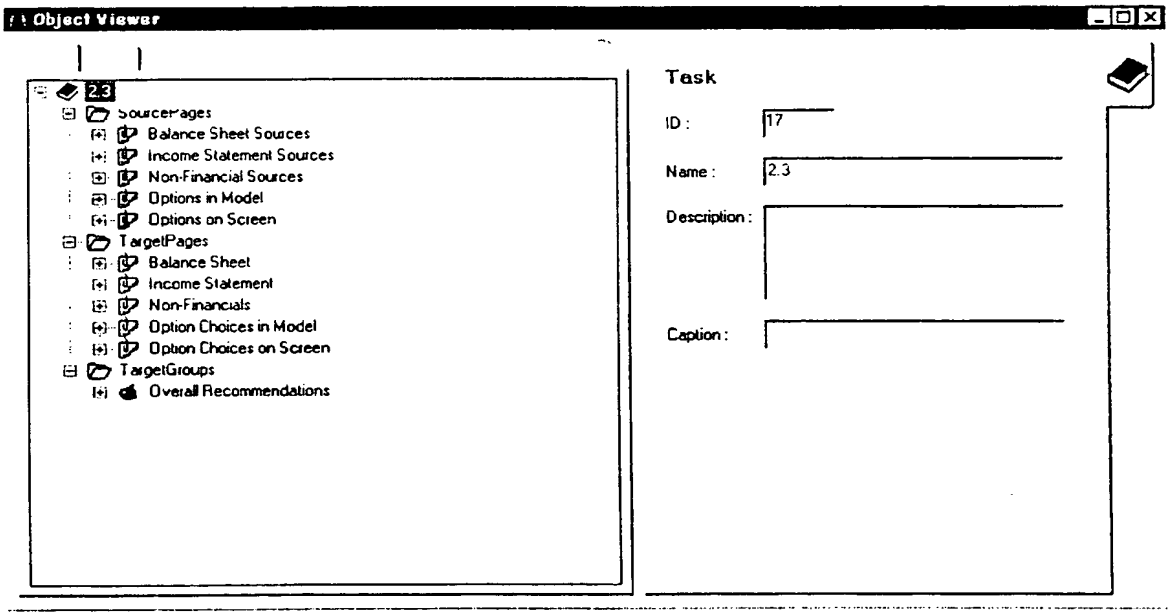


Figure 69

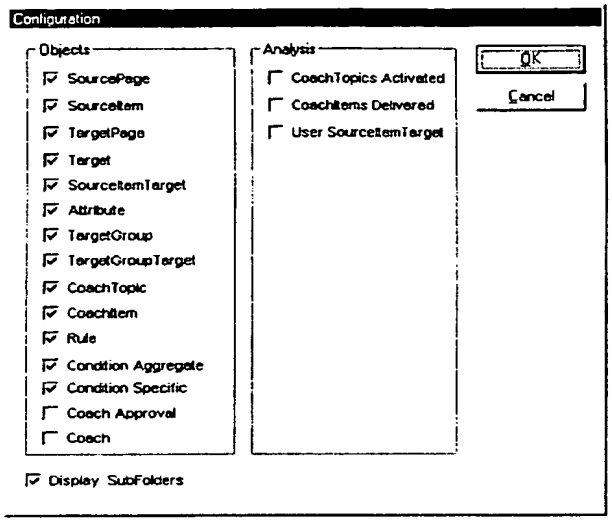


Figure 70

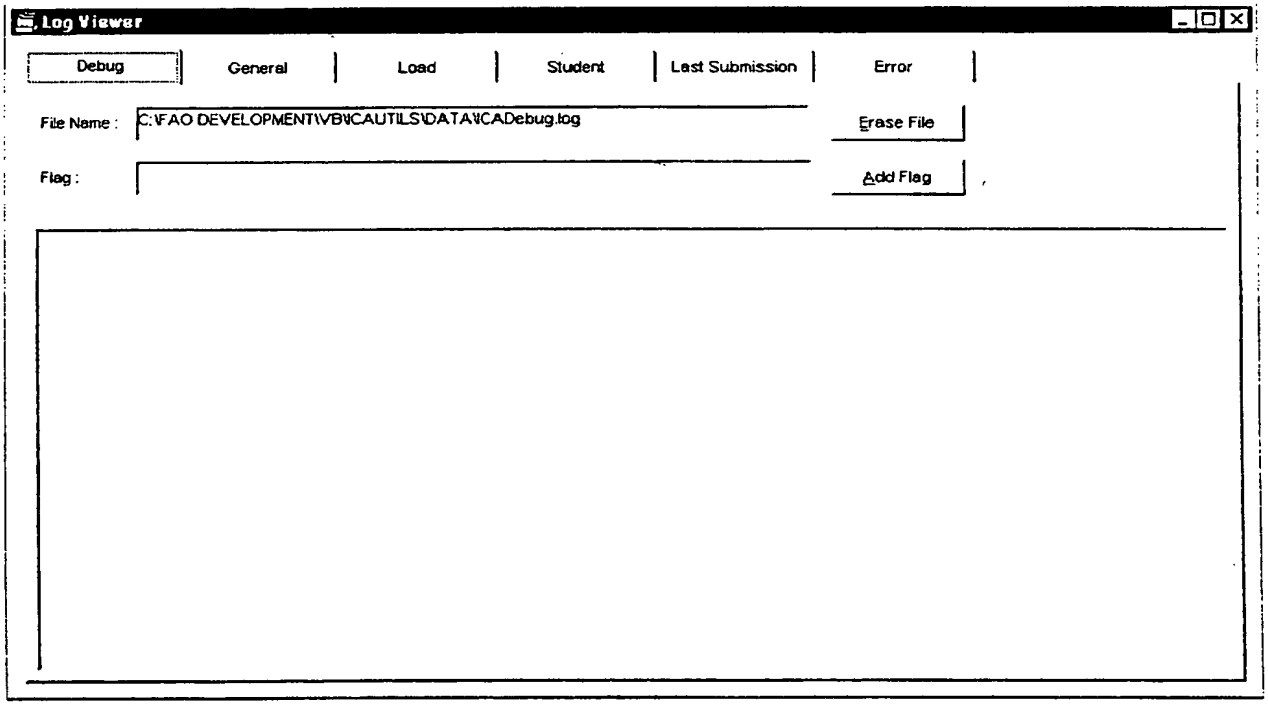


Figure 71

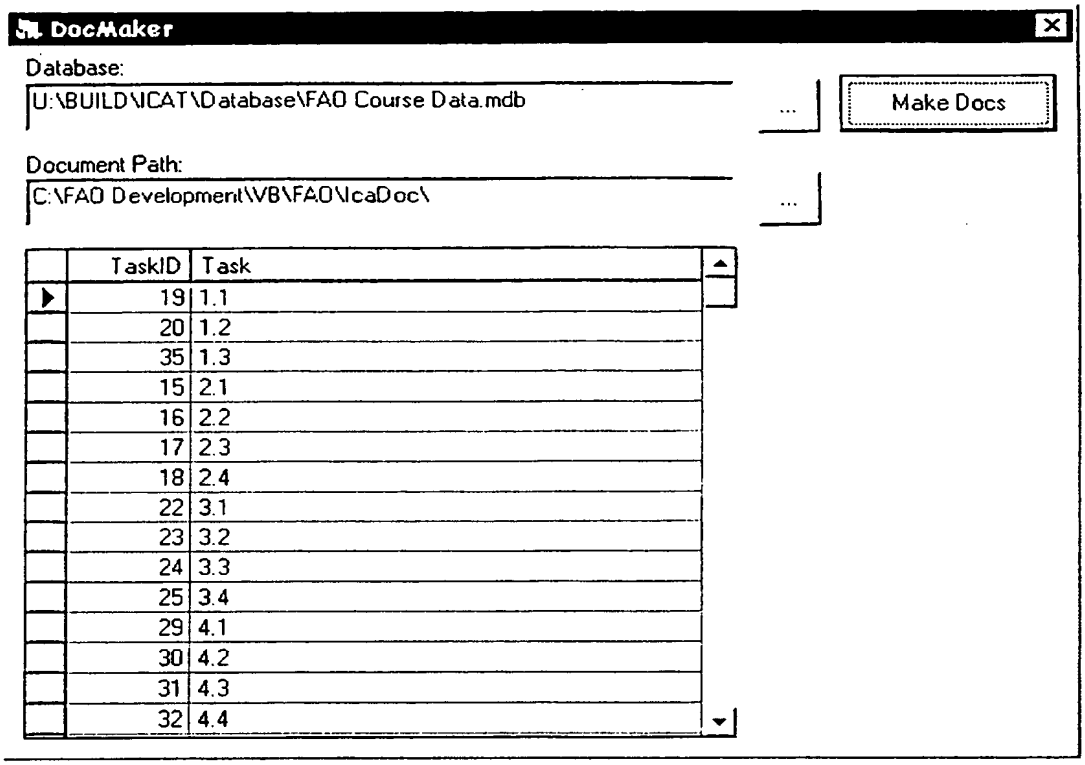

DocMaker
Database:
U:\BUILD\ICAT\Database\FAO Course Data.mdb
...
Make Docs
Document Path:
C:\FAO Development\VB\FAO\IcaDoc\
...
TaskID
Task
19 1.1
20 1.2
35 1.3
15 2.1
16 2.2
17 2.3
18 2.4
22 3.1
23 3.2
24 3.3
25 3.4
29 4.1
30 4.2
31 4.3
32 4.4

Figure 72

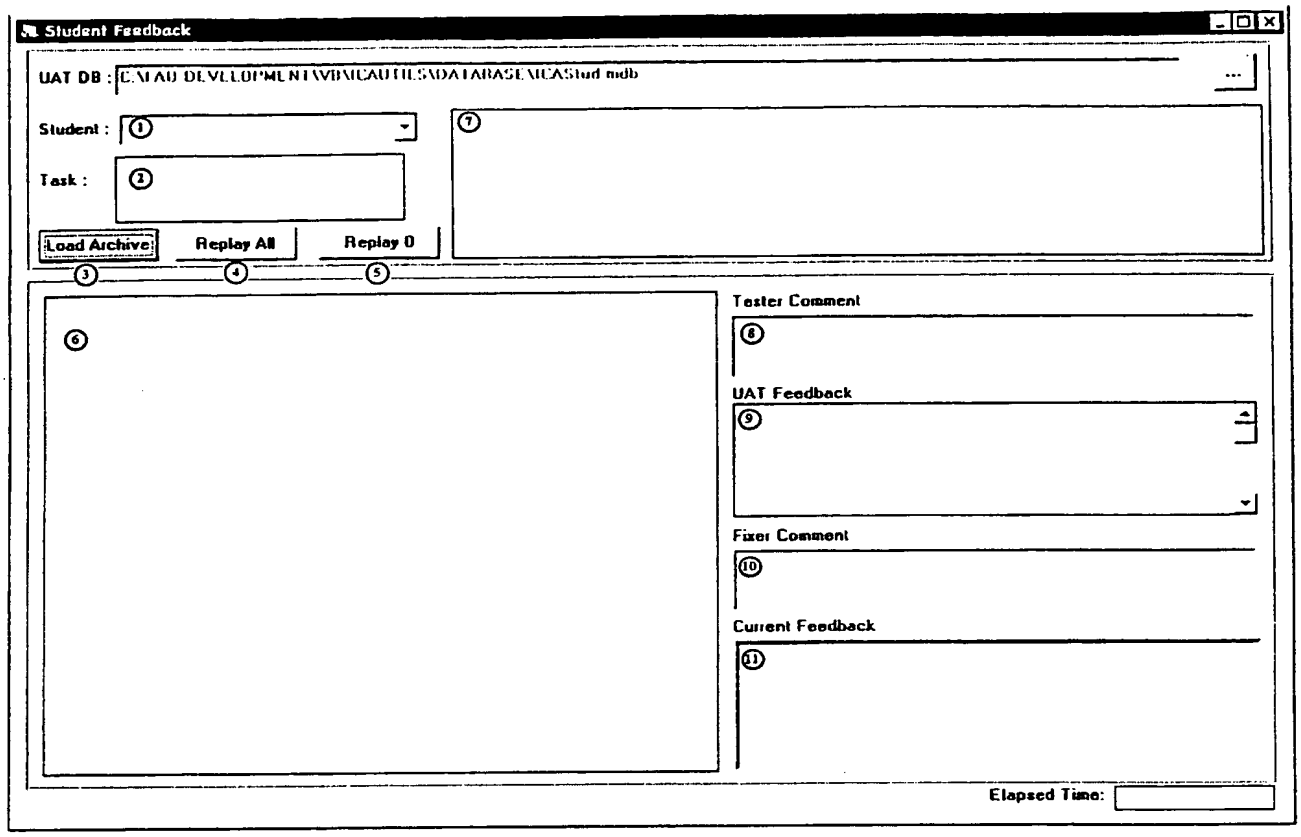

Student Feedback
UAT DB :
Student :
Task :
Load Archive
Replay All
Replay 0
Tester Comment
UAT Feedback
Fixer Comment
Current Feedback
Elapsed Time:

Figure 73

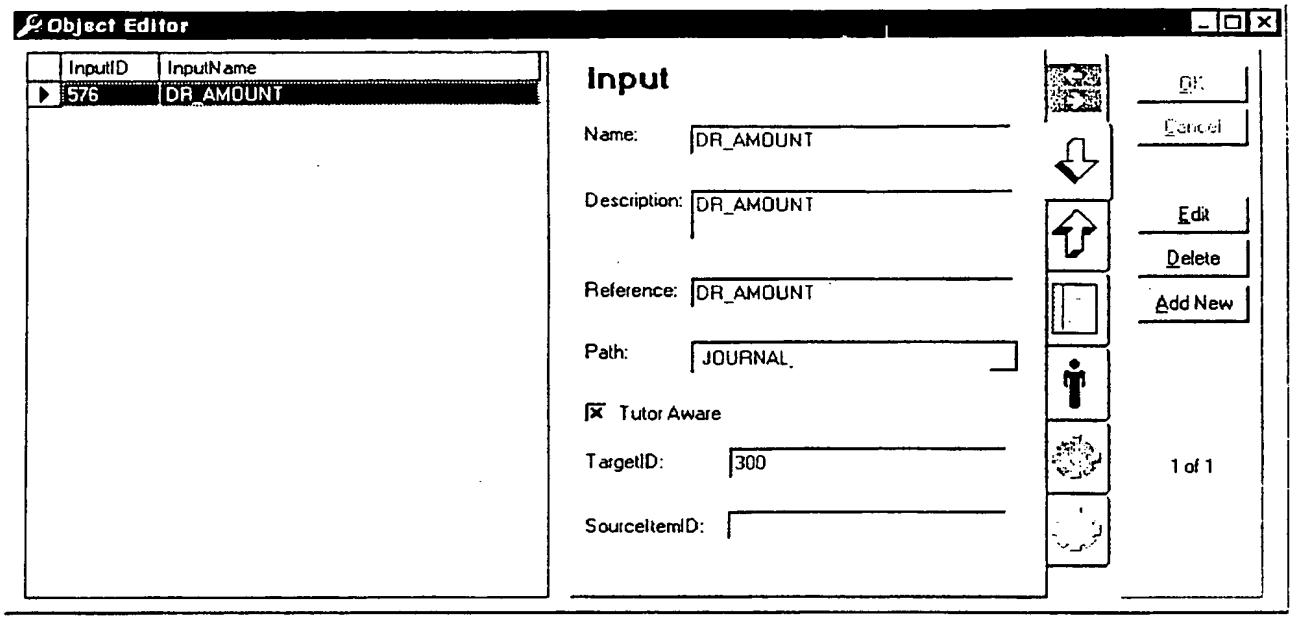

Object Editor
InputID
InputName
576
DR_AMOUNT
Input
Name:
DR_AMOUNT
Description:
DR_AMOUNT
Reference:
DR_AMOUNT
Path:
JOURNAL
Tutor Aware
TargetID:
300
SourceItemID:
OK
Cancel
Edit
Delete
Add New
1 of 1

Figure 74

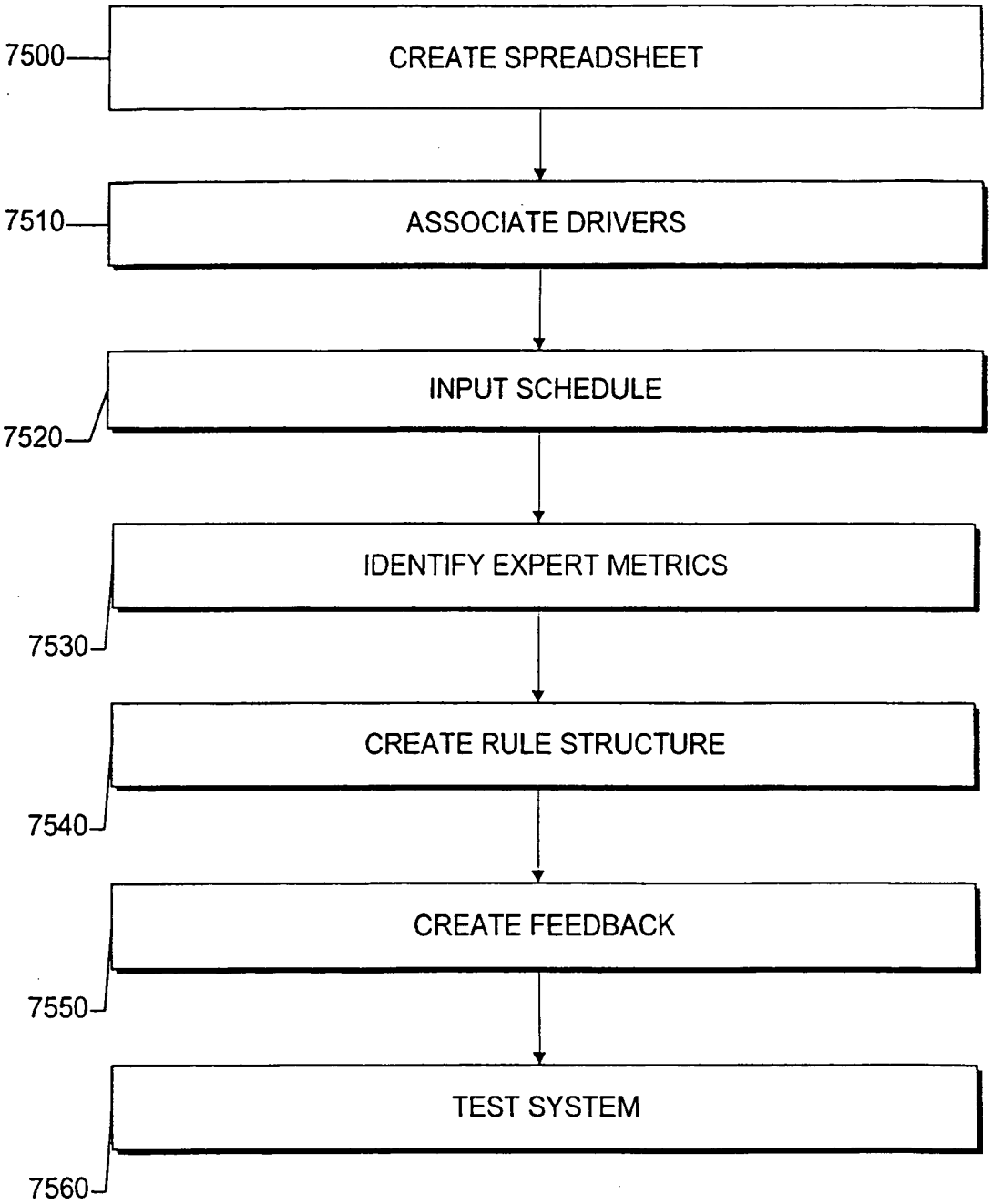

7500
CREATE SPREADSHEET
7510
ASSOCIATE DRIVERS
INPUT SCHEDULE
7520
IDENTIFY EXPERT METRICS
7530
CREATE RULE STRUCTURE
7540
CREATE FEEDBACK
7550
TEST SYSTEM
7560

FIGURE 75

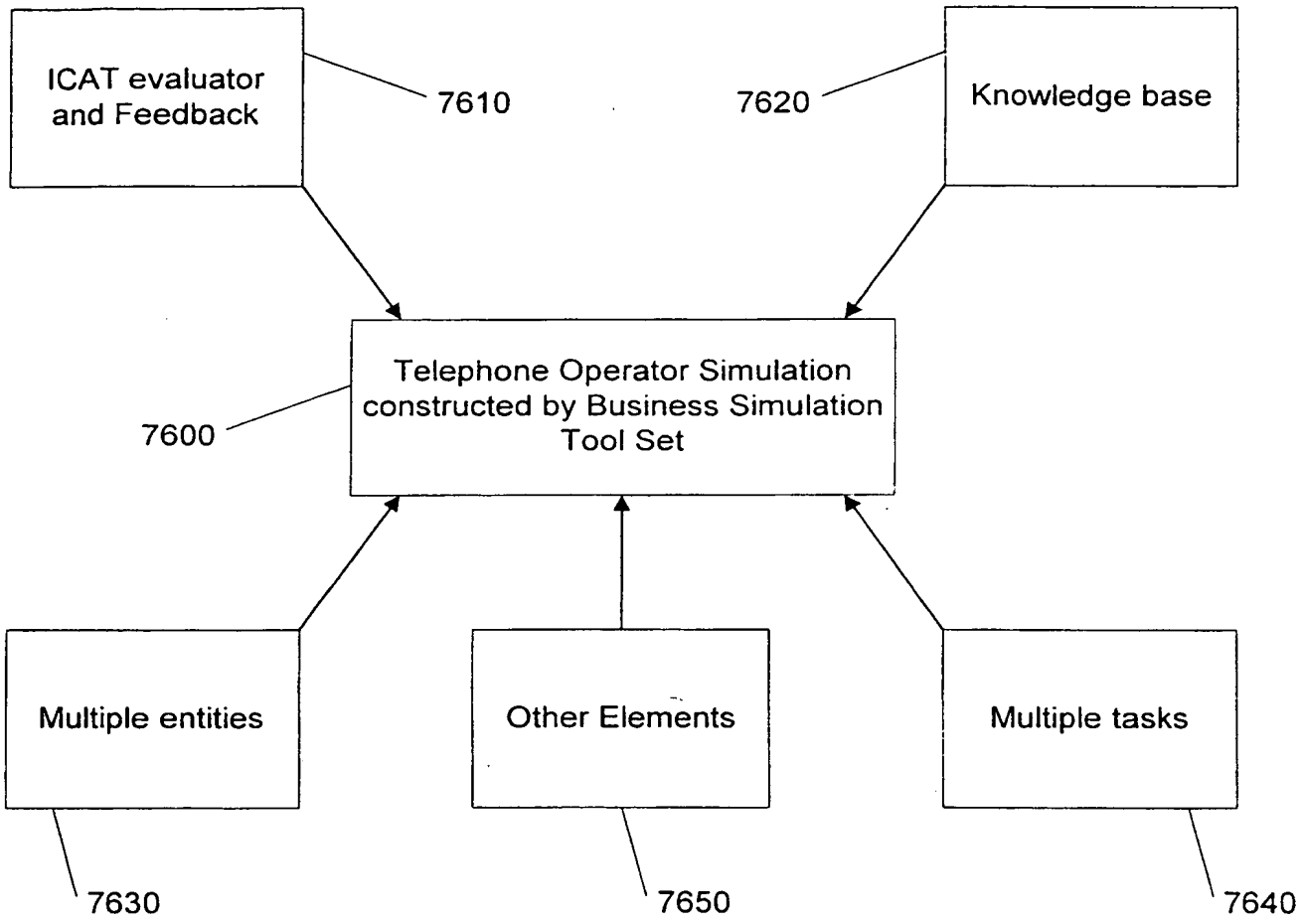


Figure 76
Assembly of Telephone Operator Training Simulation

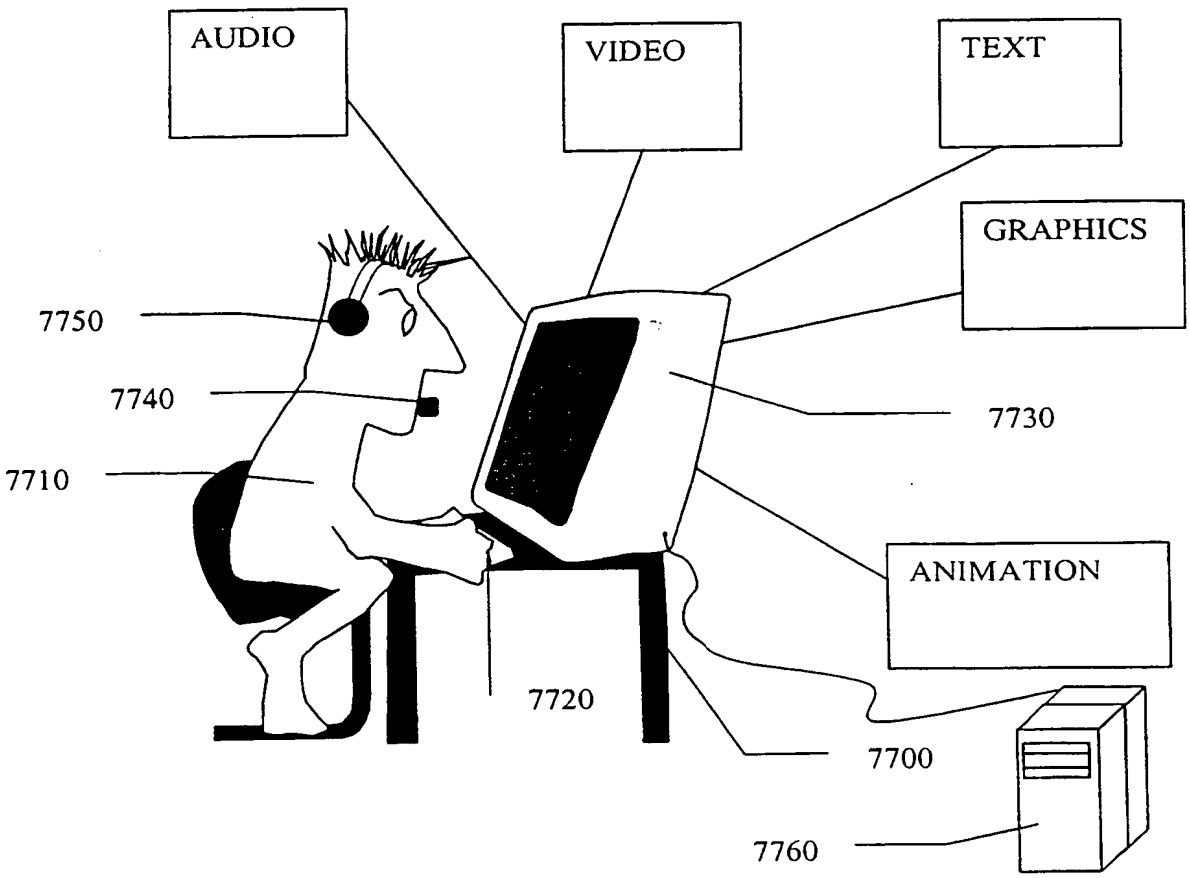

AUDIO
VIDEO
TEXT
GRAPHICS
7750
7740
7730
7710
ANIMATION
7720
7700
7760

FIGURE 77

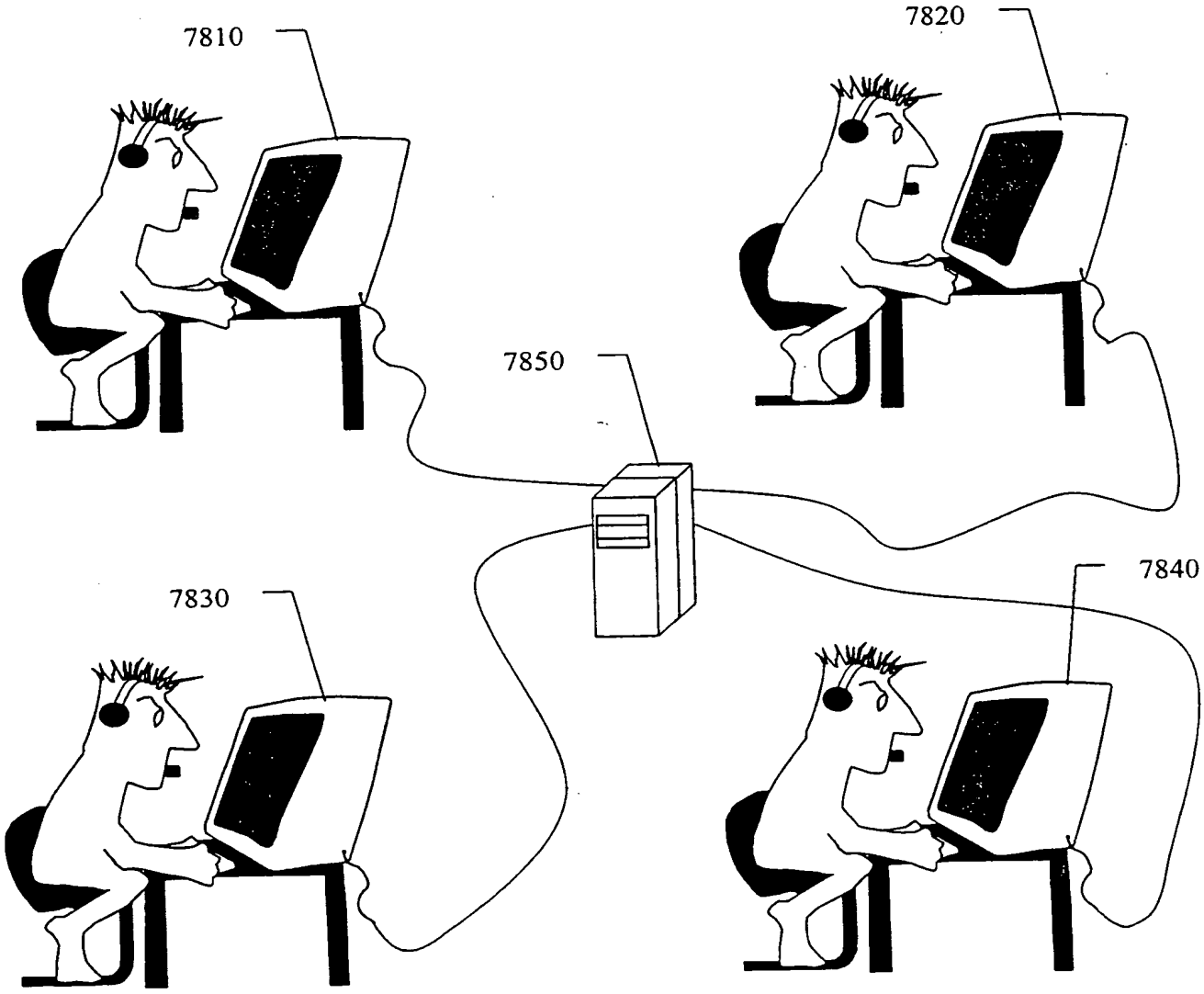


FIGURE 78

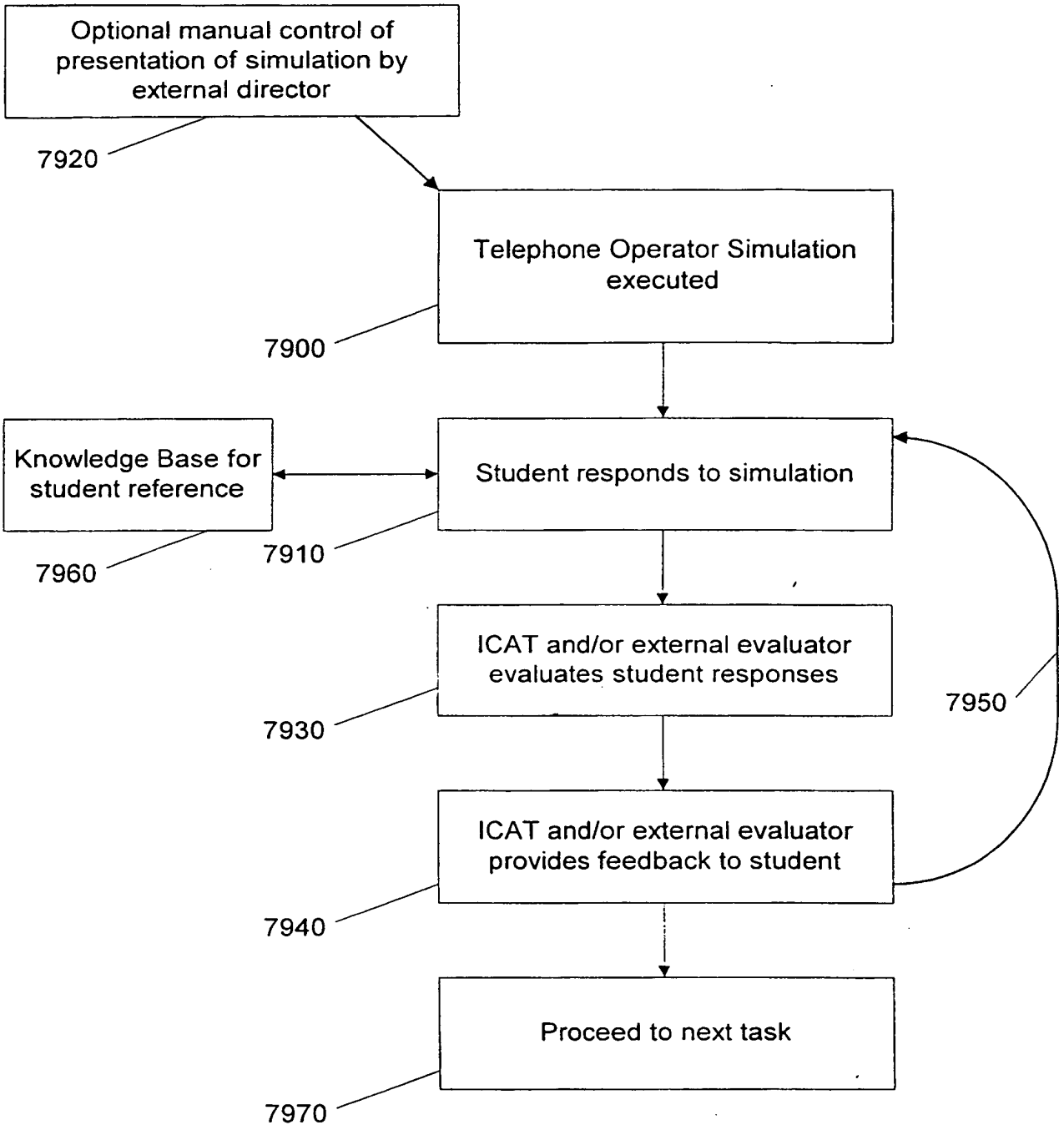


Figure 79
Telephone Operator Training
Simulation Execution

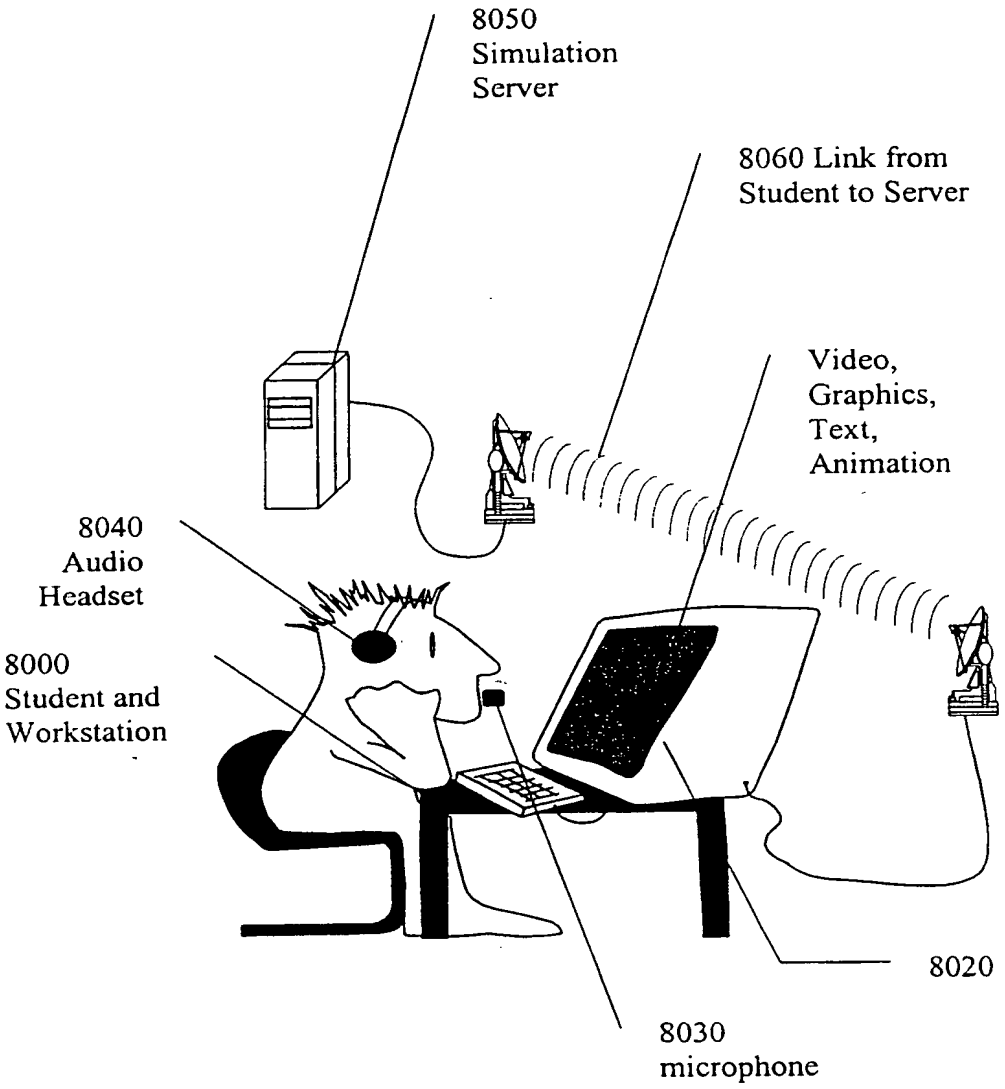

8050
Simulation
Server
8060 Link from
Student to Server
Video,
Graphics,
Text,
Animation
8040
Audio
Headset
8000
Student and
Workstation
8020
8030
microphone

Figure 80

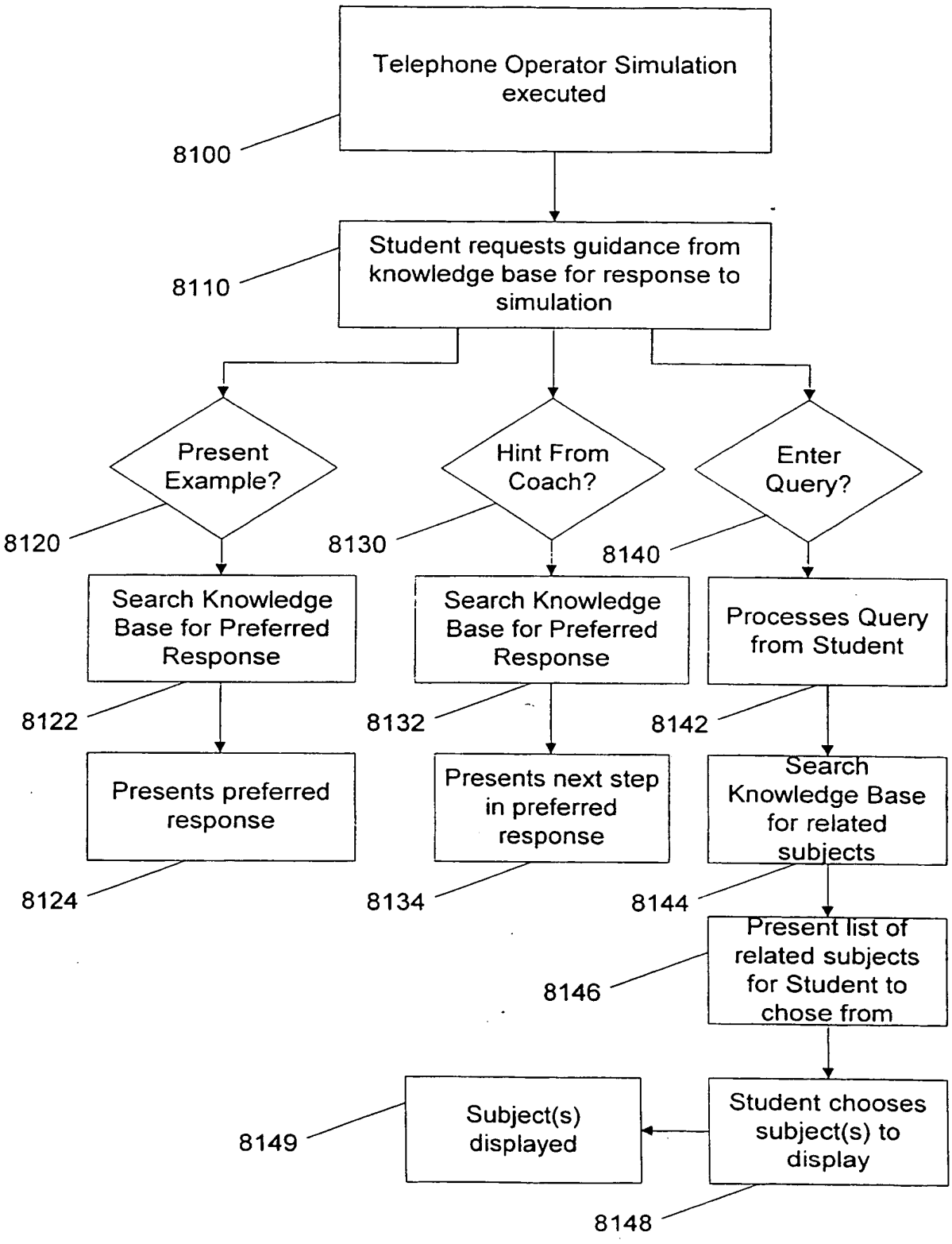
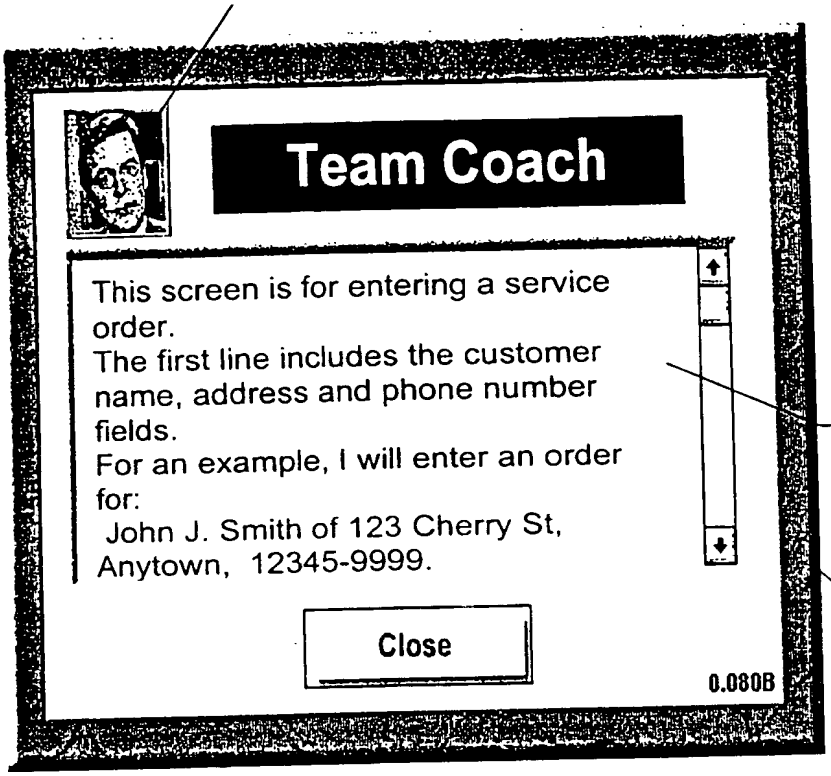


Figure 81
Query Knowledge Base


Team Coach
This screen is for entering a service order.
The first line includes the customer name, address and phone number fields.
For an example, I will enter an order for:
John J. Smith of 123 Cherry St, Anytown, 12345-9999.
Close
0.080B
8220
8200

8240
8230

Figure 82

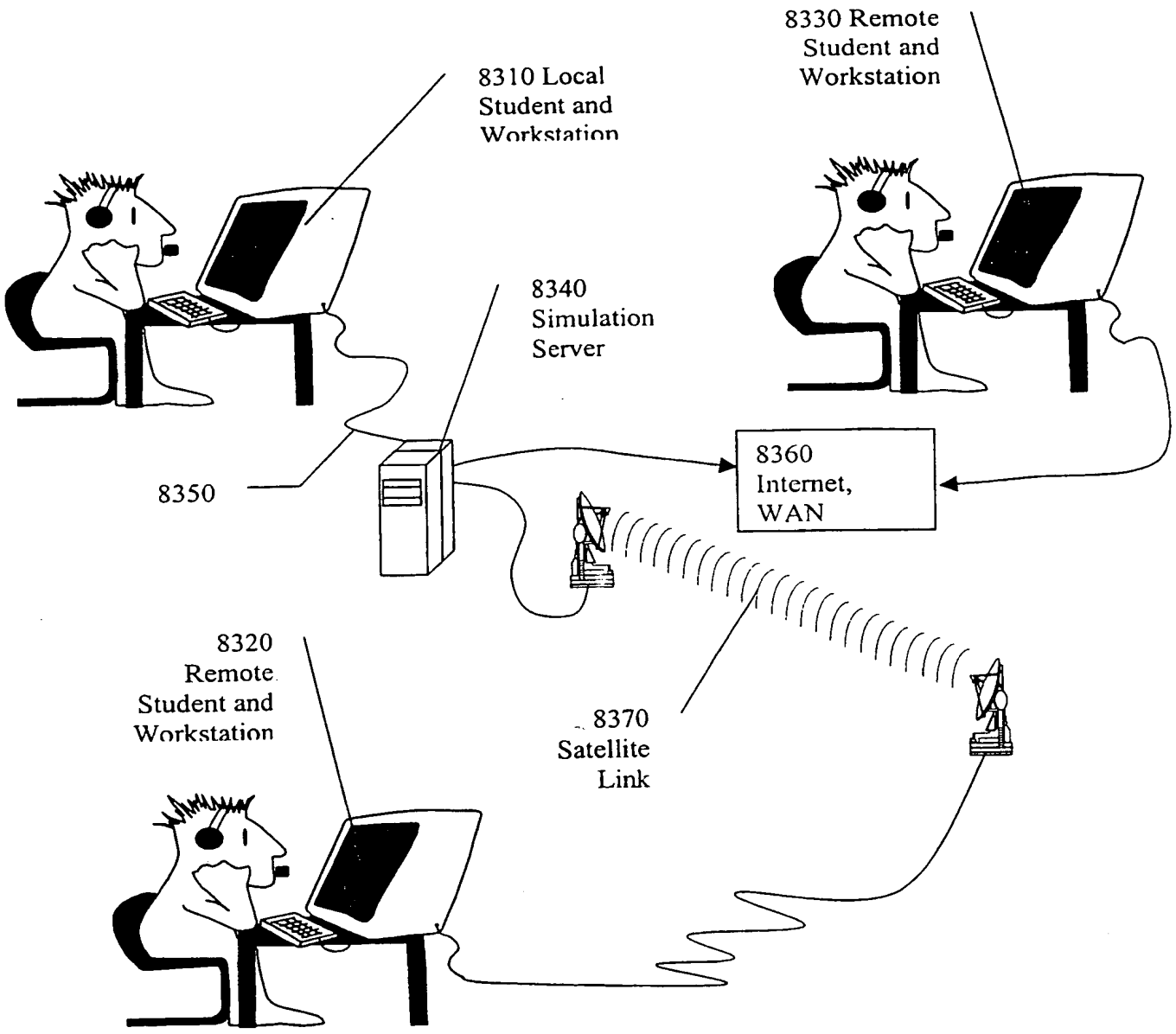

8330 Remote
Student and
Workstation
8310 Local
Student and
Workstation
8340
Simulation
Server
8350
8360
Internet,
WAN
8320
Remote
Student and
Workstation
8370
Satellite
Link

Figure 83

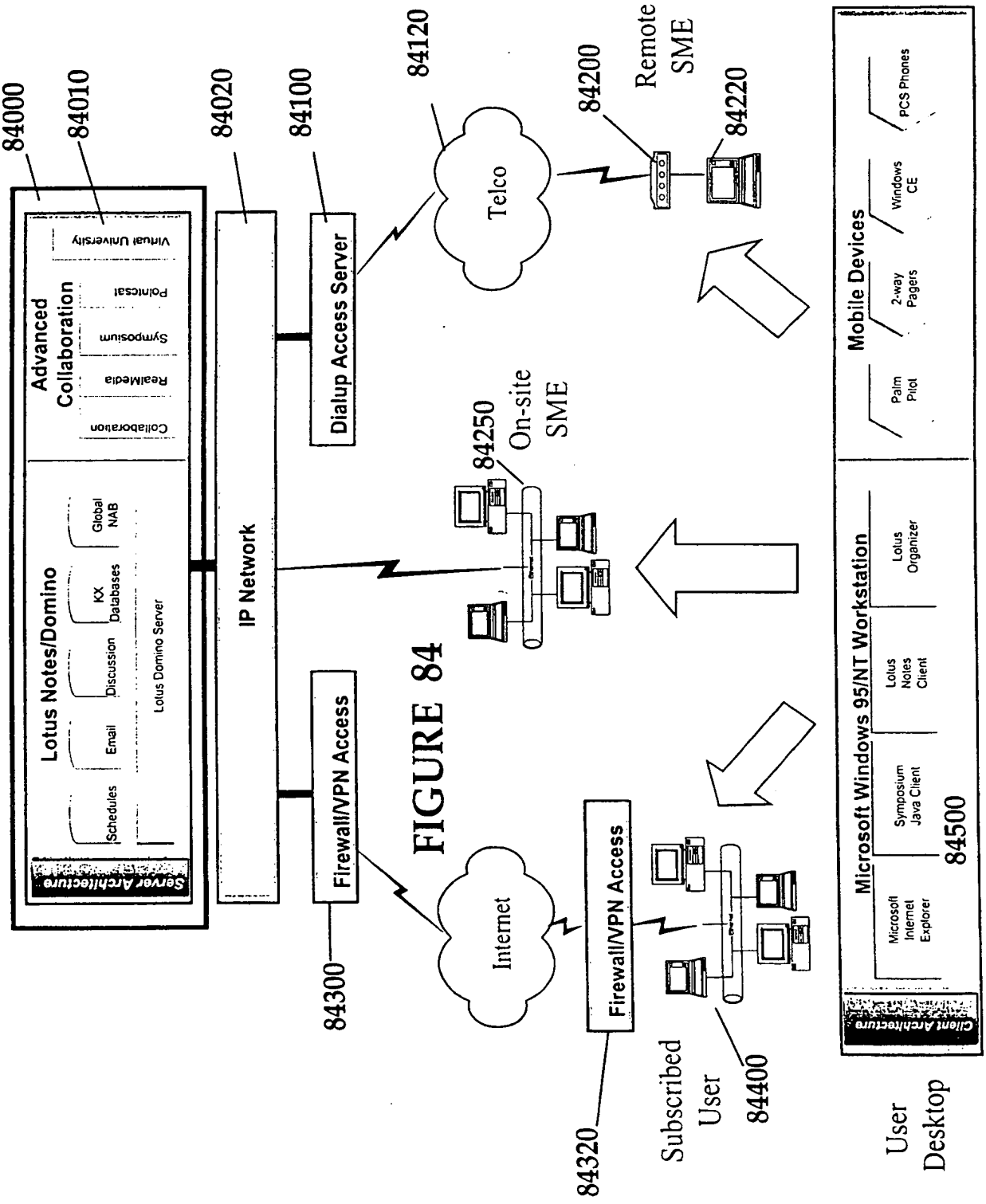

84000
84010
84020
84100
84120
84200
Remote SME
84220
Server Architecture
Lotus Notes/Domino
Schedules
Email
Discussion
KX Databases
Global NAB
Lotus Domino Server
Advanced Collaboration
Collaboration
RealMedia
Symposium
Pointcast
Virtual University
IP Network
Dialup Access Server
Telco
Mobile Devices
Palm Pilot
2-way Pagers
Windows CE
PCS Phones
84250
On-site SME
Firewall/VPN Access
84300
Internet
Firewall/VPN Access
84320
Subscribed User
84400
Client Architecture
Microsoft Windows 95/NT Workstation
Microsoft Internet Explorer
Symposium Java Client
Lotus Notes Client
Lotus Organizer
84500
User Desktop

FIGURE 84

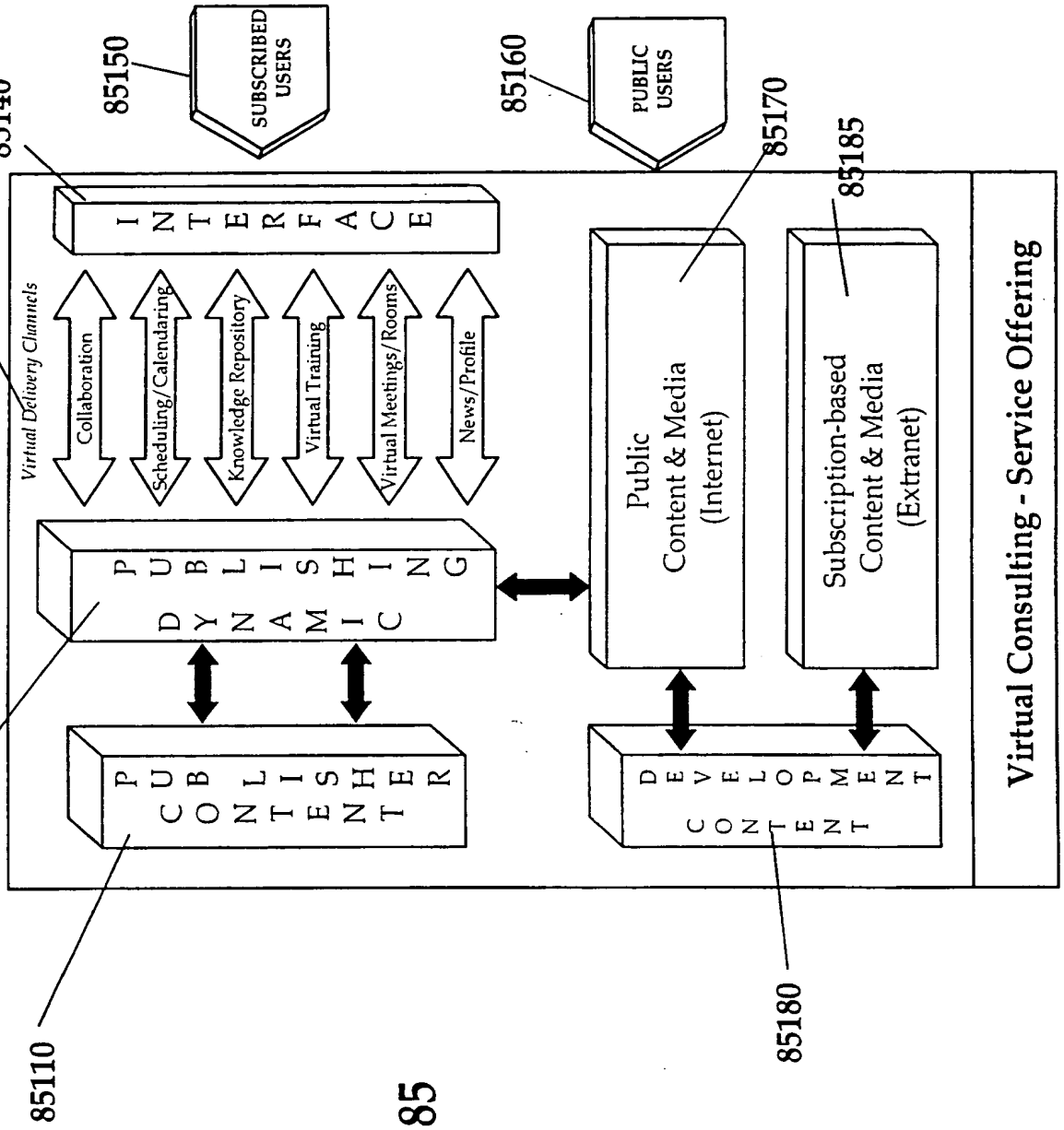

85150
SUBSCRIBED USERS
85160
PUBLIC USERS
85140
INTERFACE
85130
Virtual Delivery Channels
Collaboration
Scheduling/Calendaring
Knowledge Repository
Virtual Training
Virtual Meetings/Rooms
News/Profile
85170
Public Content & Media (Internet)
85185
Subscription-based Content & Media (Extranet)
Virtual Consulting - Service Offering
PUBLISHING
85120
PUBLISHER
85110
DEVELOPMENT
85180

FIGURE 85

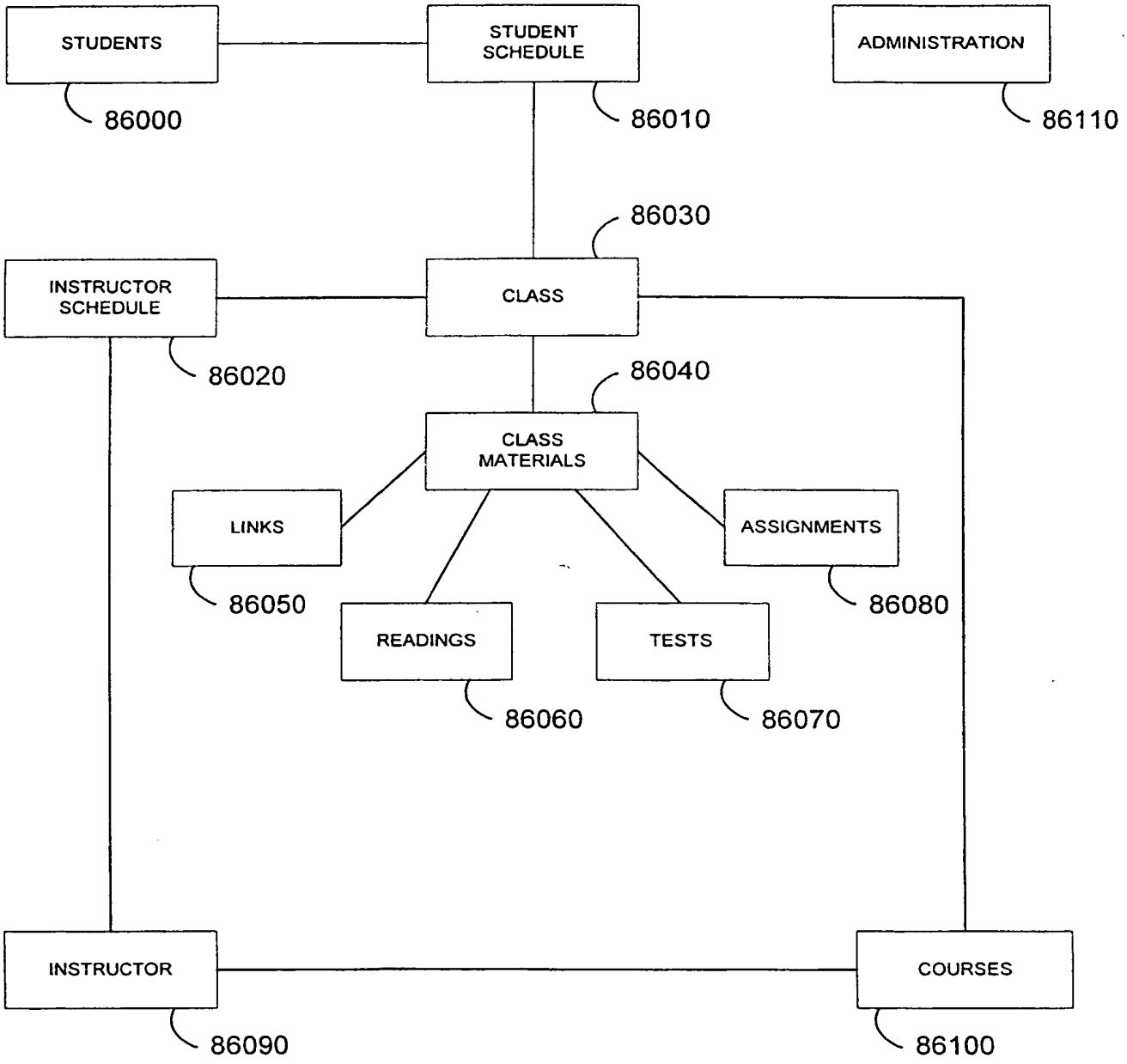

STUDENTS
86000
STUDENT SCHEDULE
86010
ADMINISTRATION
86110
86030
INSTRUCTOR SCHEDULE
86020
CLASS
86040
CLASS MATERIALS
LINKS
86050
ASSIGNMENTS
86080
READINGS
86060
TESTS
86070
INSTRUCTOR
86090
COURSES
86100

FIGURE 86

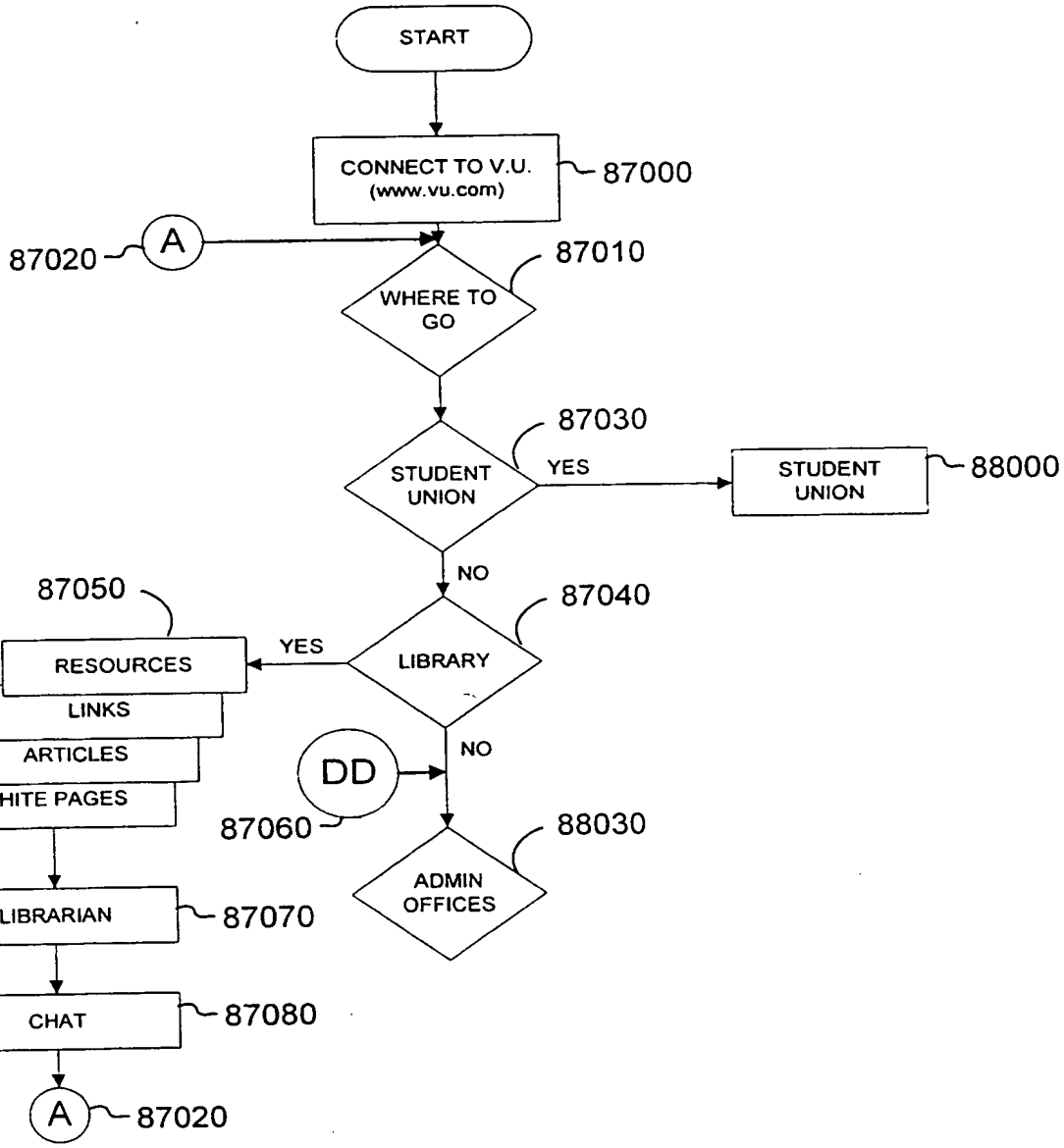


FIGURE 87

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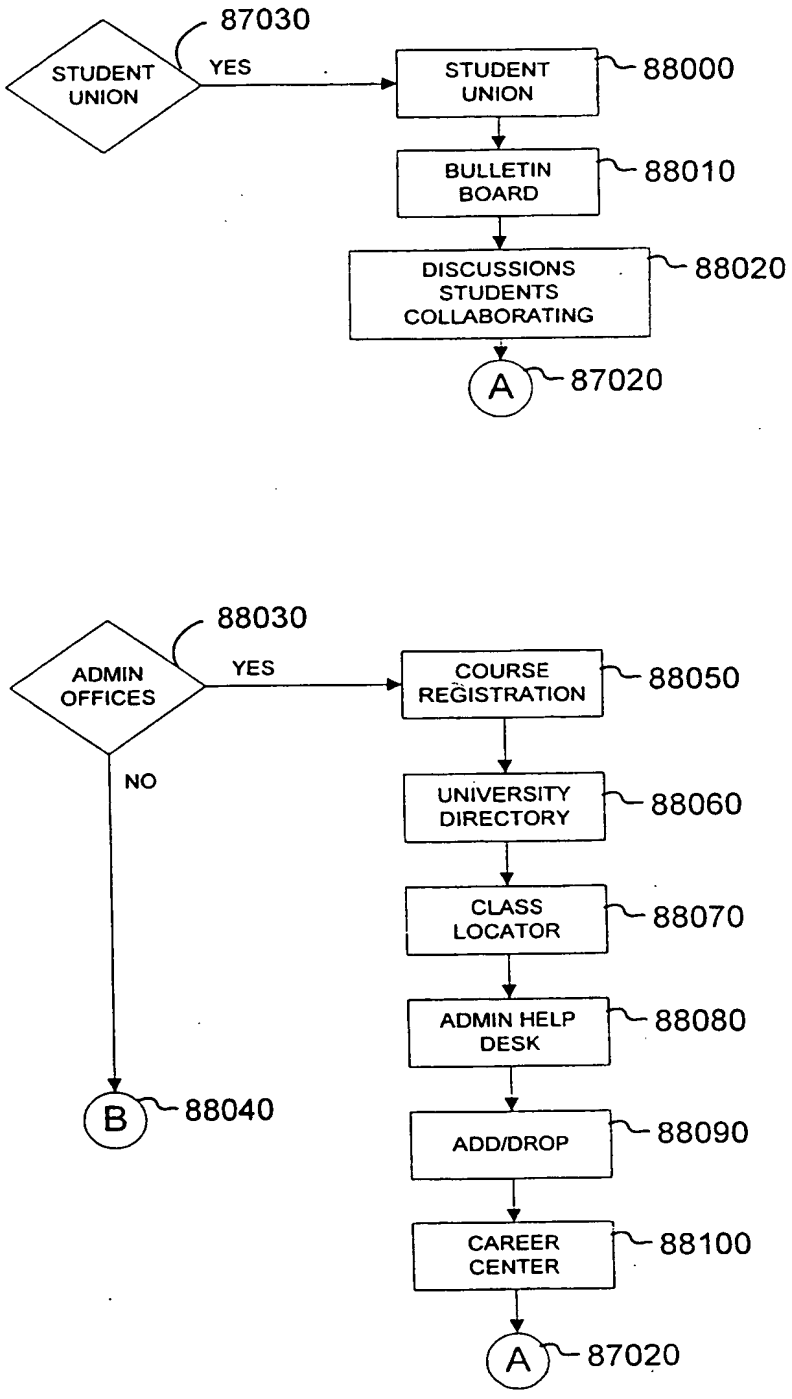
87030
STUDENT UNION
YES
STUDENT UNION
88000
BULLETIN BOARD
88010
DISCUSSIONS STUDENTS COLLABORATING
88020
A
87020
88030
ADMIN OFFICES
YES
COURSE REGISTRATION
88050
NO
UNIVERSITY DIRECTORY
88060
CLASS LOCATOR
88070
ADMIN HELP DESK
88080
B
88040
ADD/DROP
88090
CAREER CENTER
88100
A
87020

FIGURE 88

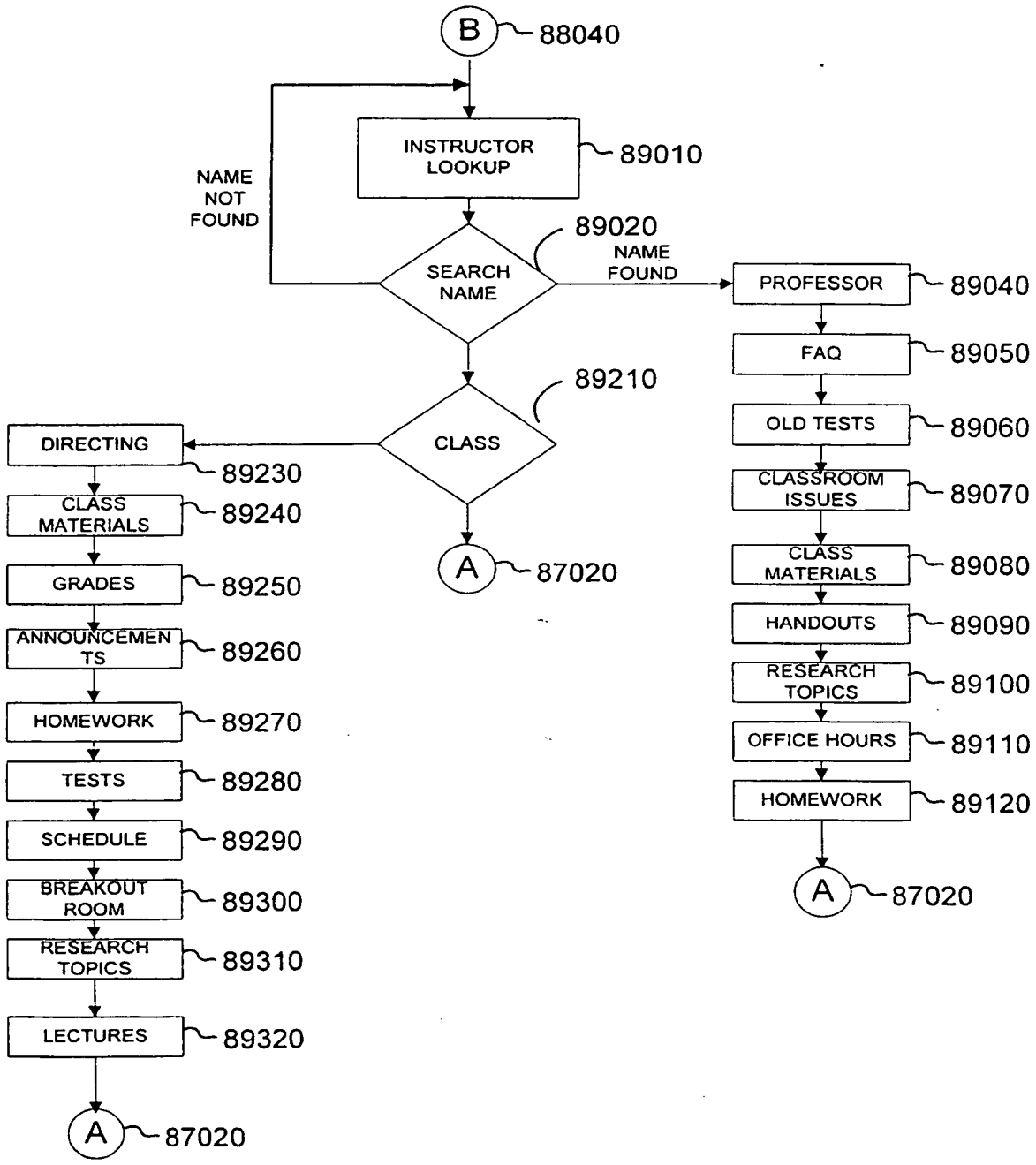
B
88040
INSTRUCTOR LOOKUP
89010
NAME NOT FOUND
89020
SEARCH NAME
NAME FOUND
PROFESSOR
89040
FAQ
89050
OLD TESTS
89060
CLASSROOM ISSUES
89070
CLASS MATERIALS
89080
HANDOUTS
89090
RESEARCH TOPICS
89100
OFFICE HOURS
89110
HOMEWORK
89120
A
87020
89210
CLASS
DIRECTING
89230
CLASS MATERIALS
89240
GRADES
89250
ANNOUNCEMENTS
89260
HOMEWORK
89270
TESTS
89280
SCHEDULE
89290
BREAKOUT ROOM
89300
RESEARCH TOPICS
89310
LECTURES
89320
A
87020

FIGURE 89

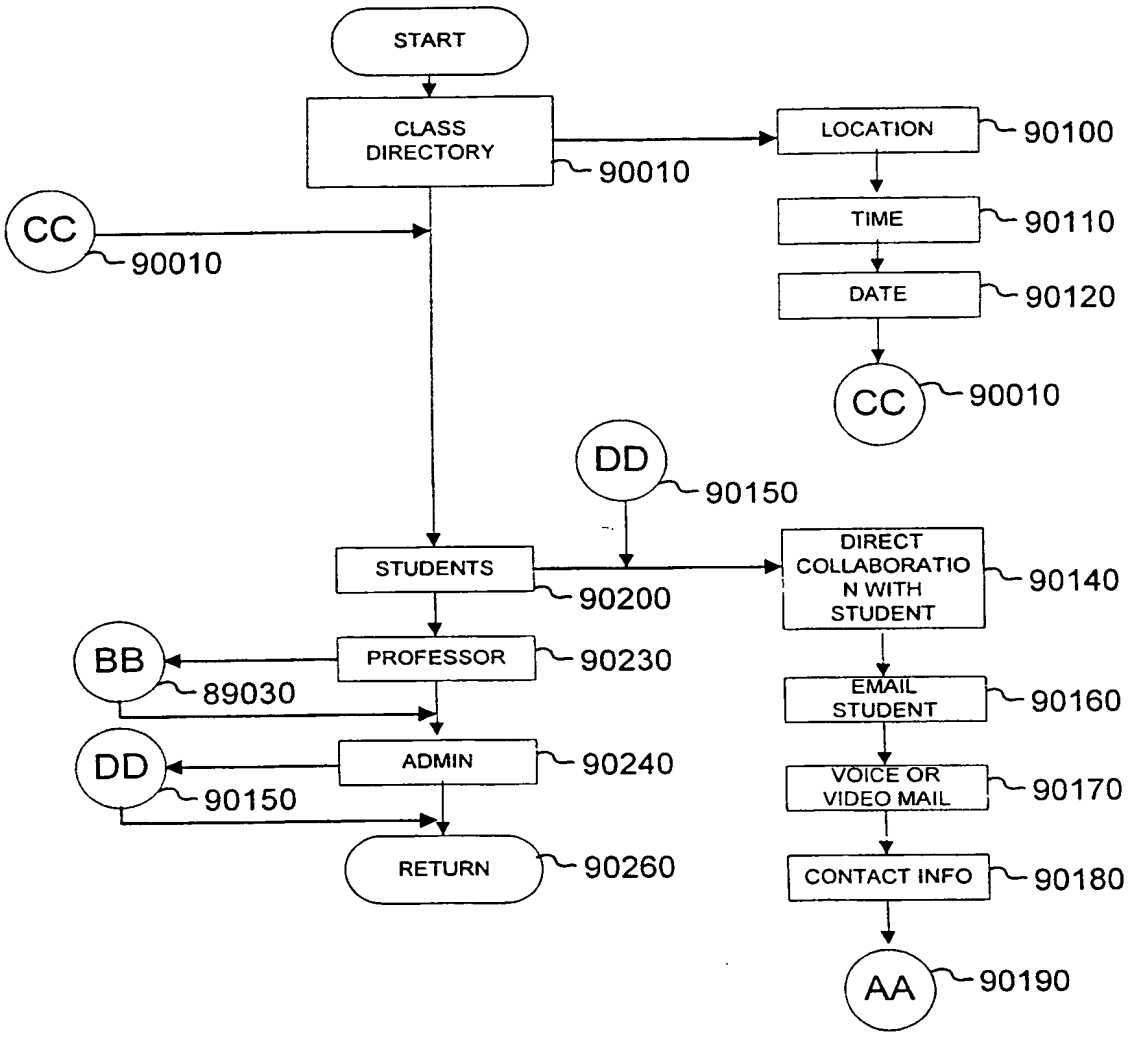
START
CLASS DIRECTORY
90010
LOCATION
90100
TIME
90110
DATE
90120
CC
90010
CC
90010
DD
90150
STUDENTS
90200
DIRECT COLLABORATIO N WITH STUDENT
90140
BB
89030
PROFESSOR
90230
EMAIL STUDENT
90160
DD
90150
ADMIN
90240
VOICE OR VIDEO MAIL
90170
RETURN
90260
CONTACT INFO
90180
AA
90190

FIGURE 90

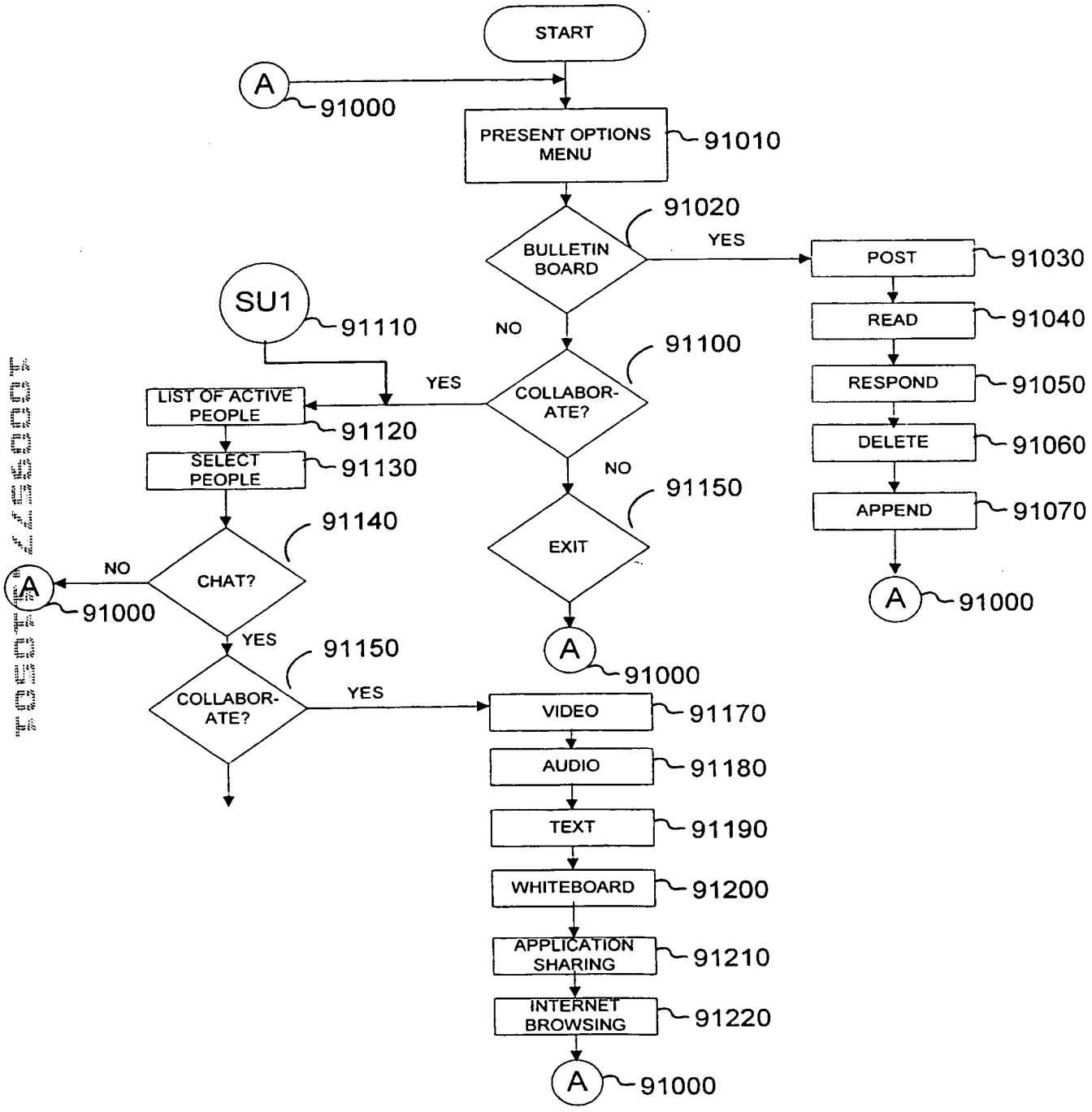
START
A
91000
PRESENT OPTIONS MENU
91010
BULLETIN BOARD
91020
YES
POST
91030
READ
91040
RESPOND
91050
DELETE
91060
APPEND
91070
A
91000
NO
SU1
91110
COLLABOR-ATE?
91100
YES
LIST OF ACTIVE PEOPLE
91120
SELECT PEOPLE
91130
NO
EXIT
91150
A
91000
CHAT?
91140
NO
A
91000
YES
COLLABOR-ATE?
91150
YES
VIDEO
91170
AUDIO
91180
TEXT
91190
WHITEBOARD
91200
APPLICATION SHARING
91210
INTERNET BROWSING
91220
A
91000

FIGURE 91

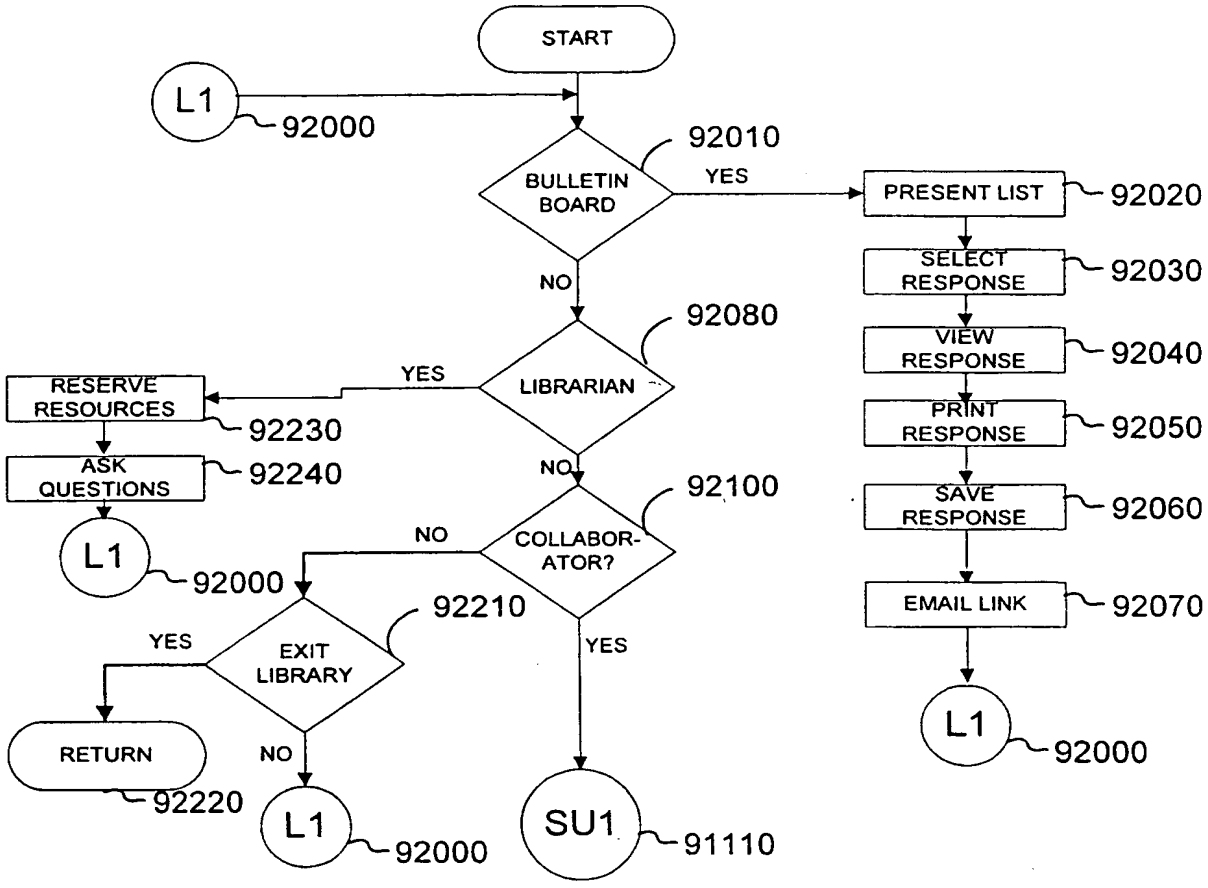

FIGURE 92

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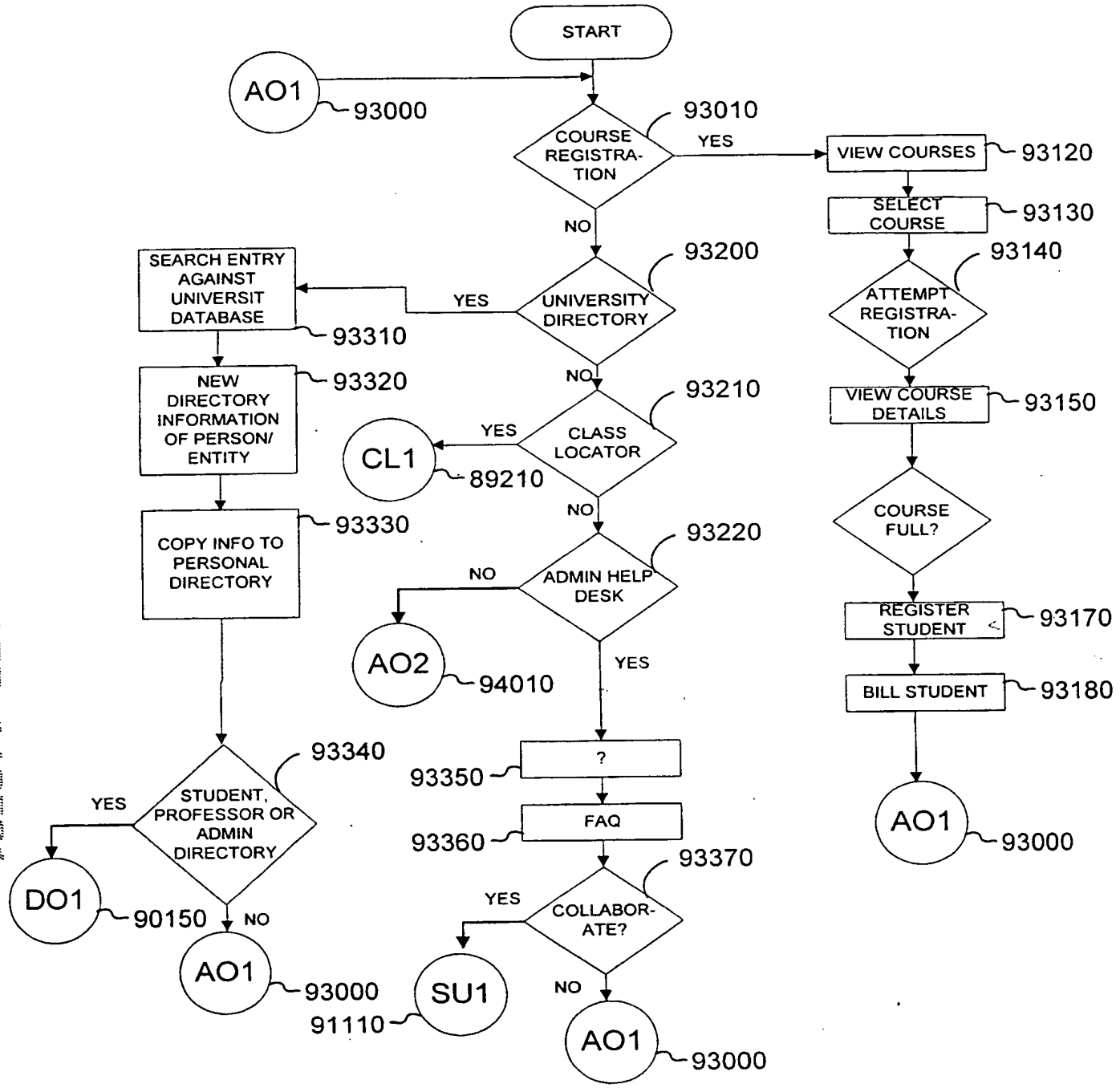

FIGURE 93

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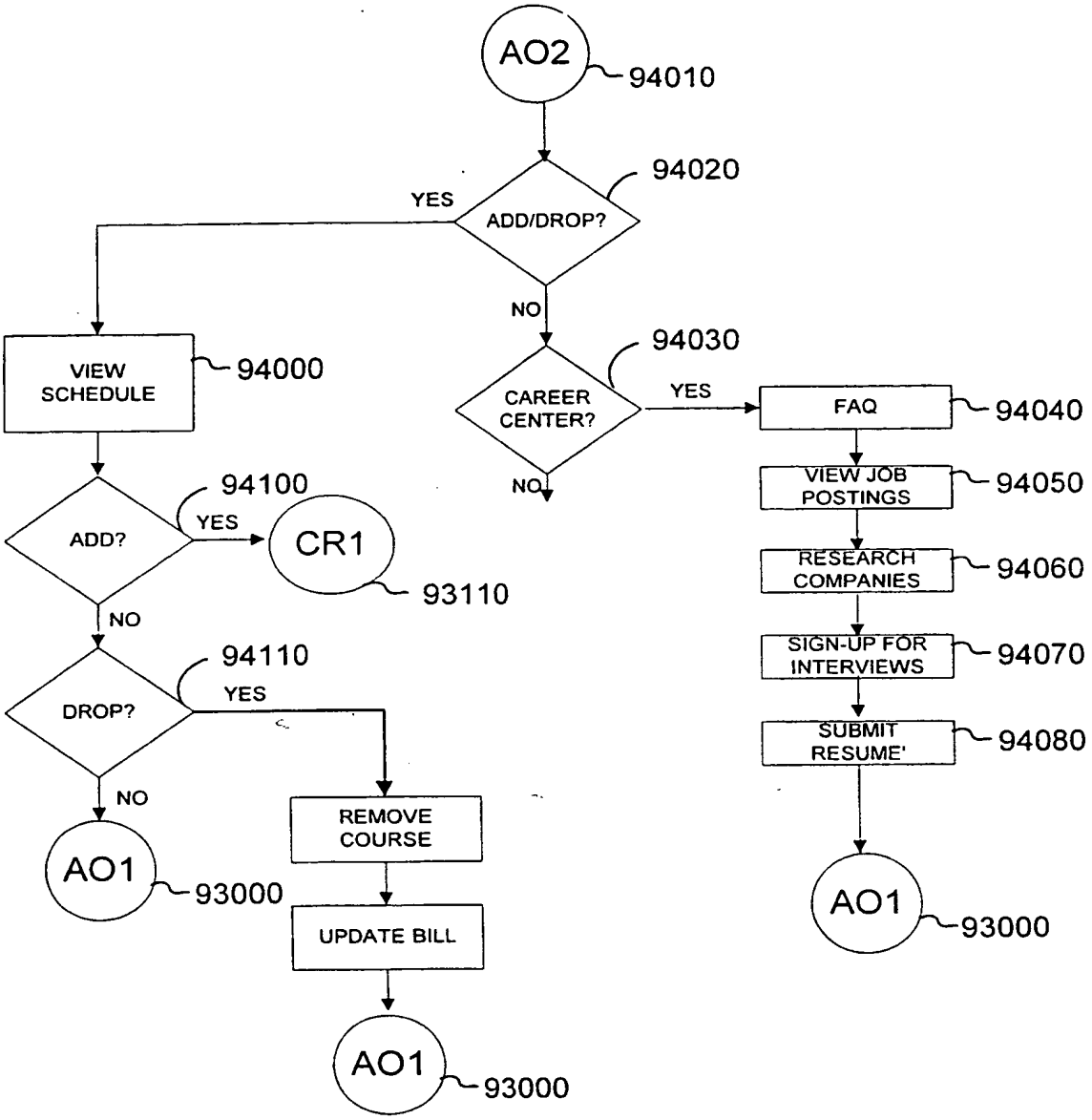

FIGURE 94

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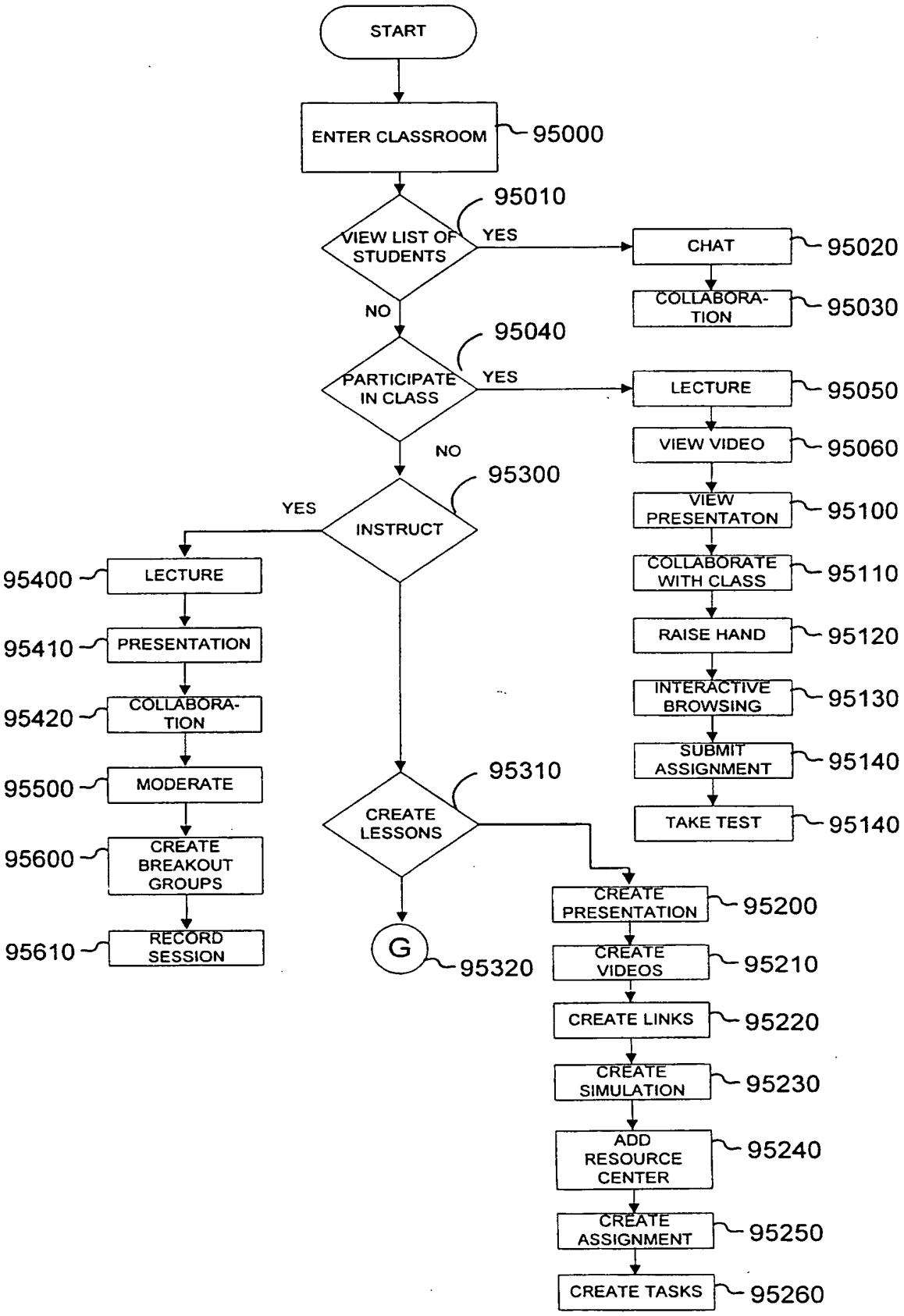

FIGURE 95

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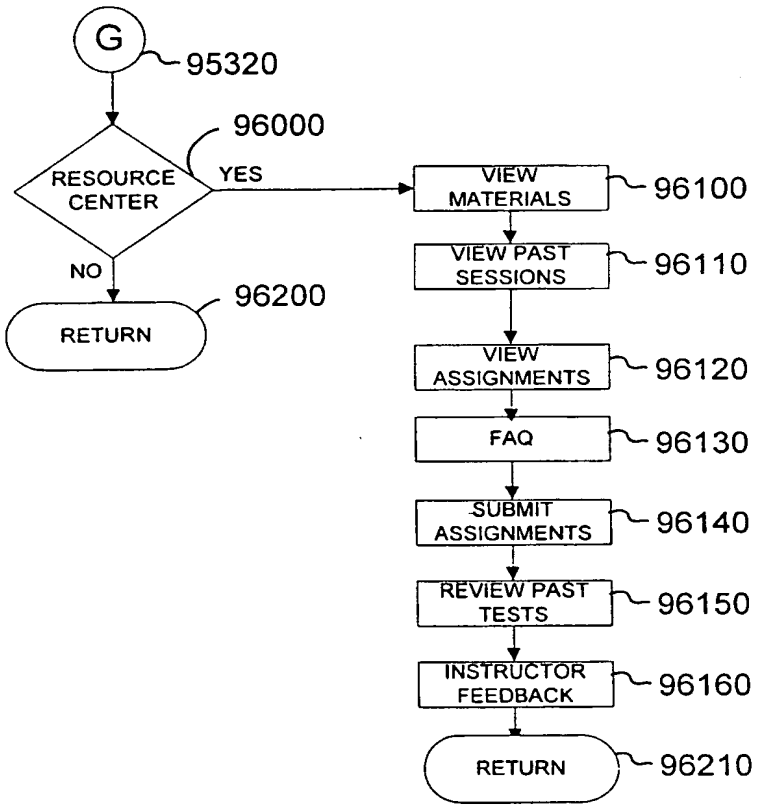

FIGURE 96

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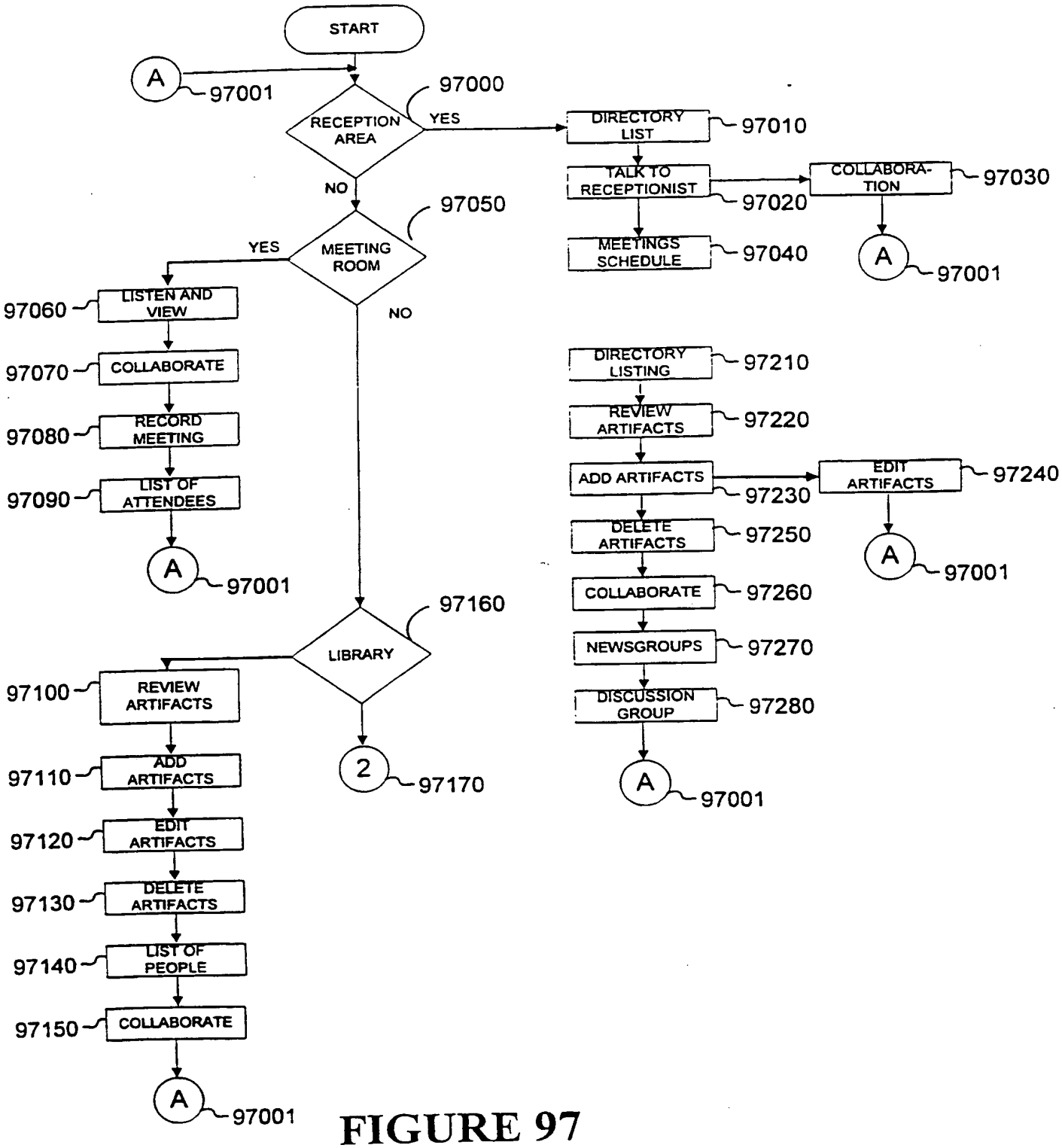

FIGURE 97

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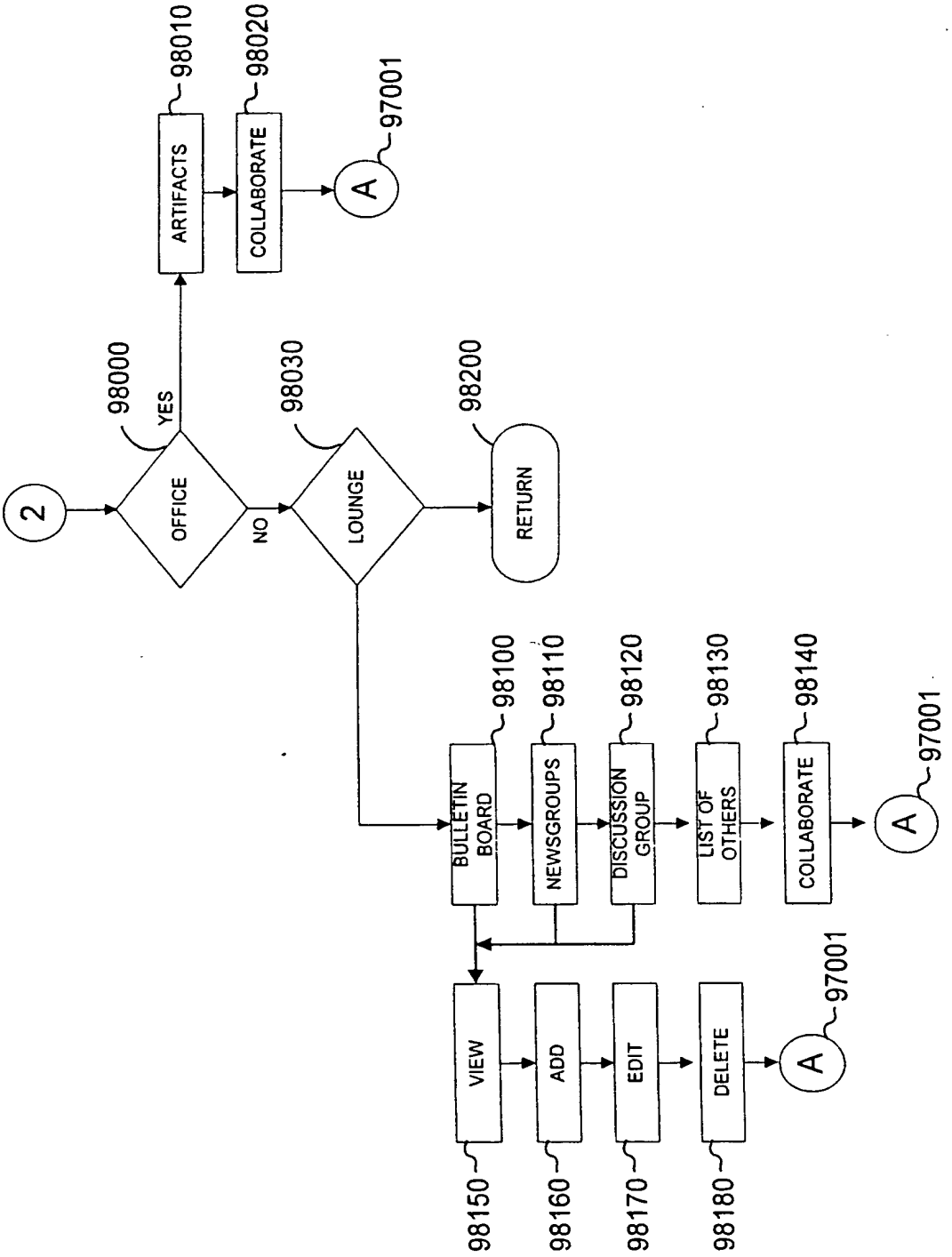
2
OFFICE
98000
YES
NO
LOUNGE
98030
RETURN
98200
ARTIFACTS
98010
COLLABORATE
98020
A
97001
BULLETIN BOARD
98100
NEWSGROUPS
98110
DISCUSSION GROUP
98120
LIST OF OTHERS
98130
COLLABORATE
98140
A
97001
VIEW
ADD
EDIT
DELETE
A
97001
98150
98160
98170
98180

FIGURE 98

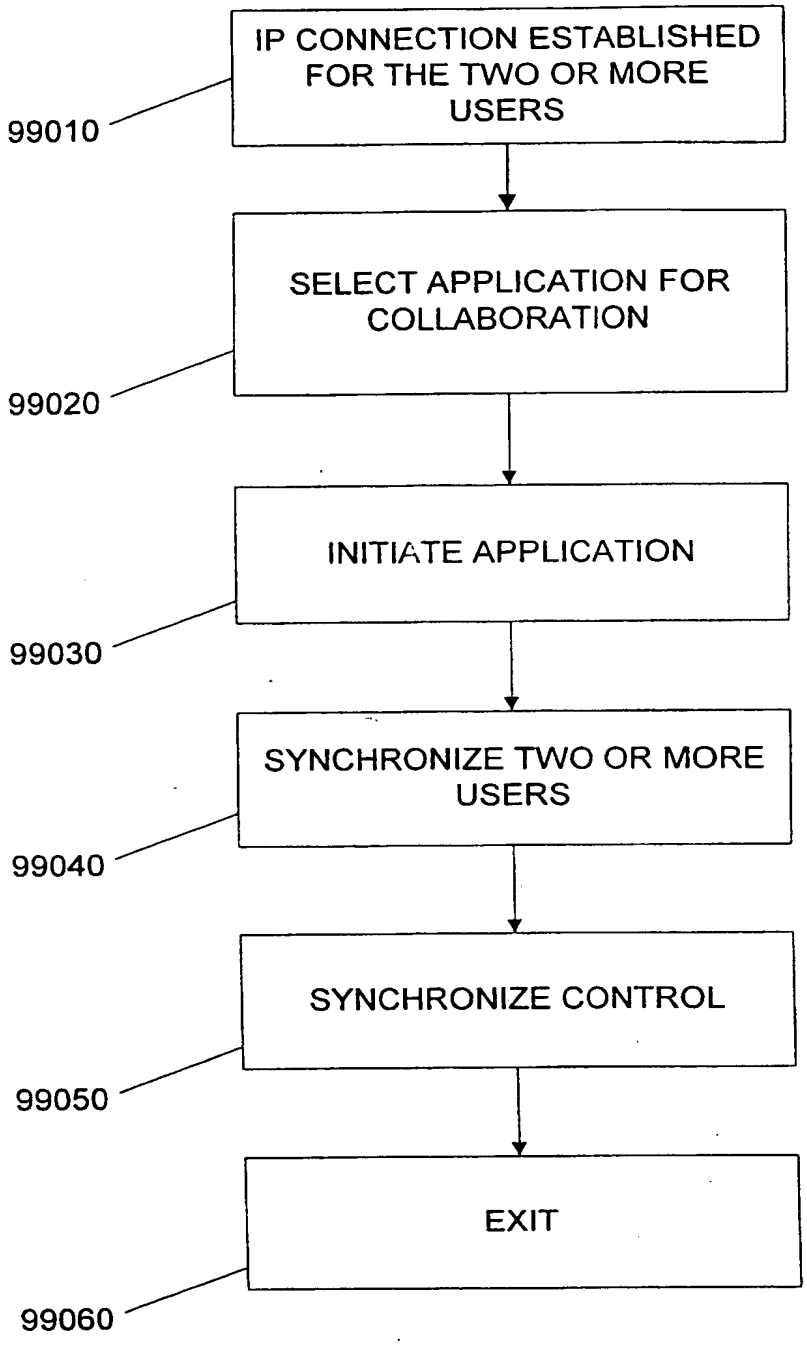
IP CONNECTION ESTABLISHED FOR THE TWO OR MORE USERS
99010
SELECT APPLICATION FOR COLLABORATION
99020
INITIATE APPLICATION
99030
SYNCHRONIZE TWO OR MORE USERS
99040
SYNCHRONIZE CONTROL
99050
EXIT
99060

FIGURE 99